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The Province of Alberta

PETROLEUM AND NATURAL GAS CONSERVATION BOARD

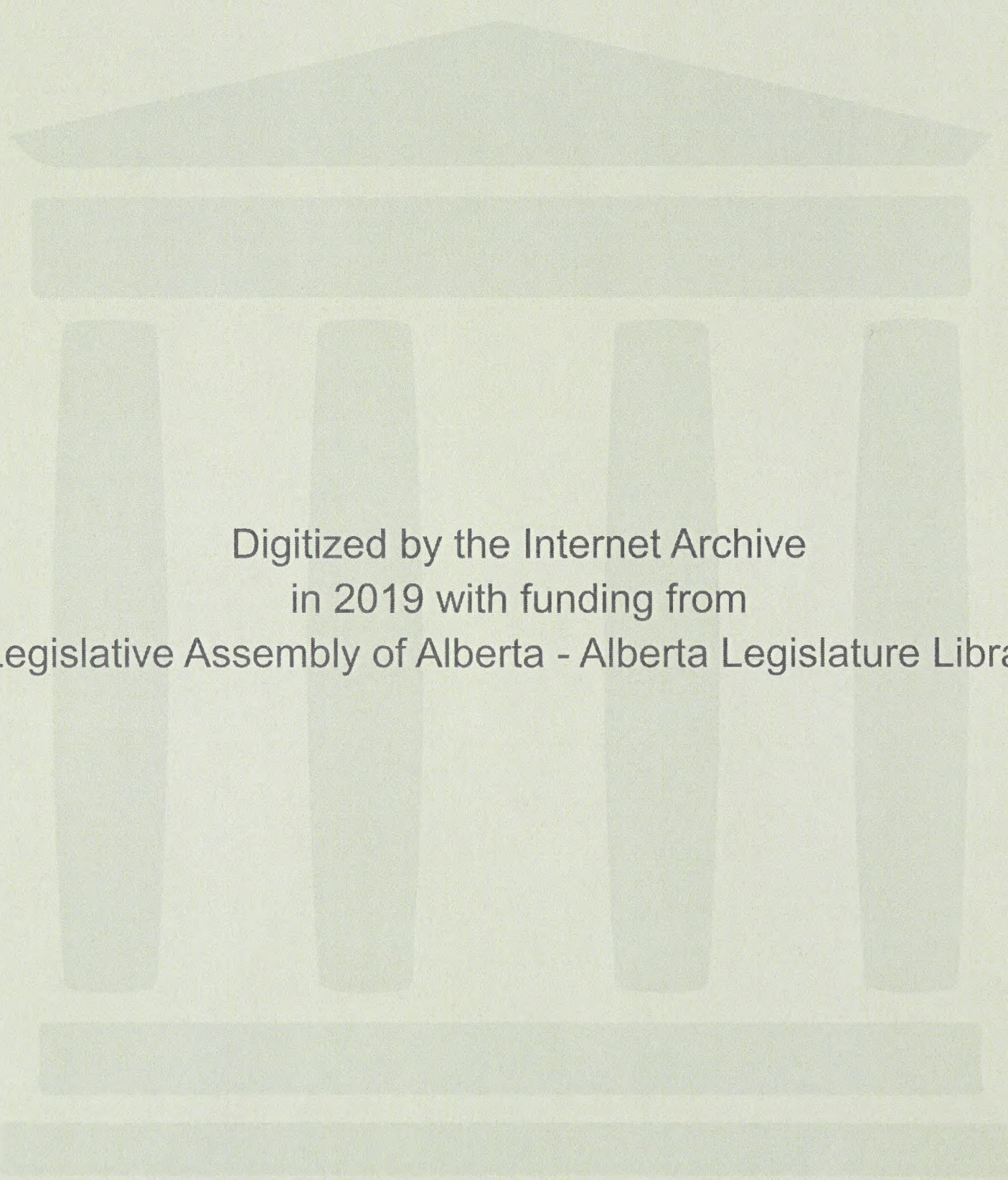
IN THE MATTER OF THE GAS RESOURCES PRESERVATION ACT

AND IN THE MATTER of a Joint Hearing to determine various questions
relating to the proposed Export of Natural Gas from the Province of Alberta.

I. N. McKinnon Esq., Chairman
D. P. Goodall Esq.
Dr. G. W. Govier

Session: November 21st, 1951.

Volume 24.



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I N D E X

VOLUME 24.

21 November 1951.

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A. Faison Dixon,
Dir. Ex. by Mr. Nolan

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November 21st, 1951.

A. FAISON DIXON, recalled, already
sworn, examined by Mr. Nolan, testified as follows:-

MR. NOLAN: Mr. Chairman, in pursuance of a
conversation which we had yesterday, I now have in my
hand a summary of estimated unit construction costs as
applicable to Exhibit 15. I have only a limited number
of them.

THE CHAIRMAN: That will be Exhibit 72.

SUMMARY OF ESTIMATED UNIT CONSTRUCTION
COSTS APPLICABLE TO EXHIBIT 15, FILED
BY NORTHWEST NATURAL GAS COMPANY,
MARKED EXHIBIT 72.

MR. NOLAN: There was some other information
required from Mr. Dixon, and I do not know whether you want
that to be put in at this stage, which means interrupting
Mr. Milvain's cross-examination, but whatever the Board
desires.

MR. MILVAIN: I am quite content to be interrupted if
it is felt Mr. Nolan's material might be better put in at
the present time.

THE CHAIRMAN: Will you proceed, then, Mr. Nolan?

Q MR. NOLAN: Have you before you a summary of the. . .

MR. McDONALD: Mr. Chairman, just a moment. This
witness, sir, is my witness under cross-examination. I
asked the questions, and I do not see, sir, why I cannot
elicit the answers. Furthermore, I point out, Mr. Chairman,
that I have not been honoured with a copy of the document
as required.

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MR. NOLAN: For the simple reason, Mr. Chairman, that there is not a copy for him, but if there are other copies required, we will have them made and distributed. That information that I have just put forward is information that the Board requested. I understand Mr. McDonald wants some more information, which I have to put in.

THE CHAIRMAN: It was Mr. Milvain that was cross-examining yesterday. Would you put in the rest of your material, Mr. Nolan, please?

MR. NOLAN: Yes, Mr. Chairman.

Q Now, what have you before you, Mr. Dixon?

A Well, we were asked various questions. One of them was in regard to accidents happening along the line. I would like before that to make a correction in my testimony of yesterday. It was some time ago, and I had forgotten, but I went back to the work sheets and I found that we had made the calculations in regard to altitude on the effective horsepower; which was set out in the exhibit - I forget the number.

Q 29.

A Those are corrected horsepowers to the altitude. It varies from almost nothing to around 4%.

Now, you asked me one question yesterday, Mr. McDonald, what would happen to the line if the Jaffray station went out. I suppose the assumption is that it goes out on a coincidental peak day, so that is what this diagram illustrates.

.....

for the simple reason, Mr. Chairman, that there is not a copy for him, but if there are other copies required, we will have them made and distributed. That information that I have that was forwarded is information that the Board requested. I understand Mr. Nelson wants some more information, which I have to put in.

It was Mr. Nelson who was cross-examining yesterday. Would you put in the rest of your

Chairman, please. Now, what have you before you, Mr. Nelson? Yes, Mr. Chairman. Now, what have you before you, Mr. Nelson? One of them was in regard to the line, I would like to make a correction in my testimony of yesterday. It was some time ago, and I had forgotten, but I went back to the work sheets and I found that we had made the calculations in regard to attendance on the effective date, which was set out in the exhibit - I forgot the number.

29.

There are corrected horsepowers for the electric. It varies from almost nothing to around 45. Now, you asked me one question yesterday, Mr. McDonald, what would happen to the line if the battery section went out. I suppose the assumption is that it goes out on a conventional bank day, so that is what this diagram illustrates.

A. Faison Dixon,
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CROSS-EXAMINATION BY MR. McDONALD:

- Q Just a minute, Mr. Dixon. My question was directed to the Moyie compressor station. Which one did you deal with?
- A The Moyie, yes, pardon me.
- Q Yes?
- A Which is the station after the Jaffray station.
- Q That is right?
- A Where we assume this station blows up and does it when everything is going at the top of the market in all places, something that probably never could happen as far as throughput of the line is concerned. We have going in, or coming out of the Jaffray station, .293 million cubic feet. We take out that station, but assume that it is burned up or blown up and still the line bypass is working. The amount of gas that we would get then from the Newport station would drop to 215 million cubic feet, or we would lose 78 million cubic feet. We would have an excess amount of compression from there on, obviously, because you have less gas going through the line. Now, what would happen to the whole system? In the first place, Canada would have first call, wherefore the Canadian cities and Trail would take approximately 55 million. That would leave for the rest of the market in the States, 160 million, and they would be shy a very considerable amount of gas. Well, if I was running the pipe line, I would get on the 'phone and call up everybody that could possibly shut off to put a standby on and have them shut down and see what we could do. In such a case certainly there would not be enough gas for the market in the States, obviously.

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Now, another question - do you want me to go ahead on that?

Q My question was directed, Mr. Dixon, to what would happen to the pressures, not what would happen, or not what would be the operating procedure of the line.

A The pressures would go away down. It would be impossible to tell what they would be, because you don't know what you would be shutting off. The amounts of gas would be low, wherefore the pressures would be away down.

Q Yes?

A The pressure would be a very minor matter. It would be the lack of gas.

Q Yes, all right.

A Now, we have another assumption that one of the compressors goes out at the Winton station. At the Winton station, for the sake of figuring, we were using four 1100-horsepower engines. By the way, I may have been misunderstood yesterday. There were three types of engines that we used in these calculations, 880 horsepower, 1350 horsepower and 1100 horsepower. As a matter of fact, as I said, you might be forced to buy all sorts of sizes, to take what you could get. Some people prefer in building a line to have them all the same size, so that the spare parts are easy to keep on hand, but you cannot divide it equally for the load as well, unless you can change the size of the units.

Now, the results of this surprised me. We knock out one of the engines. That brings the amount of gas we can get through with the three compressors at 10% overload to 186 million. I suppose my question

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was directed to leaving all of the other loads the same. Now, let us see what happens. Considering that we were, as we first contemplated, delivering 108 million to Portland. Well, that is very simple. We do not deliver 108 million to Portland, because there is not 108 million to deliver, wherefore the pressure, you might say, was zero or less than zero. It just does not work. Just by mere chance it is 69 and a fraction million you can deliver there, and you can still deliver it at a very high pressure. That is, all the gas, you have dropped all the gas excepting 69 million, and we were figuring it last night that with those three compressors we could deliver 70 million at 513 pounds pressure, but that is all the gas we would have to deliver.

Q As I take it, was it 88 million you said you could deliver, Mr. Dixon, or 68 million?

A 69 and a fraction. Call it 70 million.

Q Yes.

A Which happens to be the figure that by pure coincidence we made the contract for, the amount that we are to deliver. In other words, with the change in that contract we now have a spare at Winton. Maybe we should take it out.

Q Yes, but on the design of your pipe line for 108 million, which is the document that you presented to the Board, you were 1 unit short in order to maintain your delivery at 108 million, and you really should have an additional unit in that particular situation?

A No. What do you mean? I did not quite follow you.

Q If you wish to maintain the deliverability which you set up in your exhibit, which is 108 million?

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A And have a proper spare.

Q And have a proper spare?

A Yes.

Q You should have another unit?

A You have to consider what is a proper spare. That depends on the circumstances. Remember, this diagram is built on a peak-day coincidental market. Along the line that can happen, of course, but the chances will be very remote for every city to have the coldest day in the year fall on the same day. Now, that does not seem possible. And it might be one could consider that you should need a spare there. That would be a matter of estimation, or judgment.

Q Yes? Well, to summarize it, Mr. Dixon, that as far as as this particular design is concerned, and the exhibit that you have placed before the Board, you are short of horsepower?

A No, sir.

Q According to the document?

A No, sir. We are not short of horsepower, not in the slightest.

Q If you drop a unit at that station, can you deliver 108 million cubic feet a day at Portland?

A No, sir, we cannot.

Q That is all I am asking you, you would be short a unit to deliver that, but when you took your contract with Portland and reduced it to 70 million cubic feet, you think that is a good deal, you think the station is quite all right, that is what I understand your evidence to be?

A Yes, sir. My evidence is to keep this peak we need a spare

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if one goes out.

Q That is right?

A Now, were there any other questions in regard to the pipe line deliveries? I forget.

Q No, not with regard to compression, Mr. Dixon.

A Now, you asked for a breakdown in regard to our change in the estimated cost of approximately a million and a half. Now, this is quite a new document. The whole thing was gone through by Mr. Goodbody and a great many corrections were made, some of them very small, but I will give you a summary of it and maybe that will be satisfactory. The other part can be read too.

Now, the main line of the Alberta Natural Gas Company is estimated in the exhibit of June 15th, 1950, at \$15,953,072.00. In Exhibit 66 of November, 1951, that amount has been increased by \$210,928.00. The New Westminster lateral has been increased from \$1,319,923.00 by \$59,077.00. The Trail lateral has been increased from \$513,363.00 by \$4,637.00. The Kimberley lateral has been increased from \$242,229.00 by \$7,771.00. The Pincher Creek lateral has been decreased by \$321.00. The contractor's fee has been increased by \$14,355.00.

In the Northwest Natural Gas Company main line, the amount of \$41,661,181.00 has been increased by \$734,819.00.

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A The Trail lateral has been increased from \$2,297,666.00 by \$229,323.00. The Ranford lateral has been increased from \$1,827,553.00 by \$138,447.00. The Renton-Bothell lateral has been increased from \$423,876.00 by \$19,124.00. The Tacoma lateral has been increased from \$286,601.00 by \$2,399.00. The Everett lateral has been increased from \$94,351.00 by \$7,649.00. The Centralia lateral from \$76,157.00 by \$10,843.00. The contractors' fees have been increased from \$2,333,377.00 by \$56,630.00. Now, the total has been increased from \$67,956,319.00 --

MR. NOLAN: That is \$67,000,000.00.

A \$67,956,319.00 by \$1,495,681.00.

Now, I will go through the item, for an example, of the 210, which is the first one. The increases have been as follows.

Q MR. NOLAN: That is the main line?

A This is the main line.

Q In Canada?

A The first item I mention in that Alberta Natural where it increased from \$15,953,000.00 by \$210,000.00, that \$210,000.00 was made up as follows: The coating is increased by \$77,418.00; installation was increased by \$173,898.00. That is an increase from an item of \$2,756,000.00. The cleaning, purging and testing has been decreased by \$12,500.00. The measuring stations have been decreased by \$63,000.00. The duty and sales tax has been increased by \$15,681.00. That is from an item of \$853,312.00. The contingencies have been increased from \$1,450,000.00 by \$18,720.00 making a total of \$210,928.00.

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Q You left out that arithmetical adjustment?

A That is the arithmetical adjustment. Now, we have gone through all of the notes of Mr. Goodbody's and that is the type of changes that he had made. The original was done under great pressure and when he had time to work on it, why, he made the arithmetical changes. Of course, we all have made arithmetical errors. Of course, we all have them.

Q MR. McDONALD: If I might suggest, Mr. Chairman, if we could have Mr. Dixon deal with the estimated adjustment costs of the main line, that was the Canadian main line.

A That was the Canadian main line, yes.

Q Would you deal with the main line in the United States?

A Yes, sir. The main line in the United States: The coating has been increased from -- I will just give even figures, if you do not mind -- from \$977,000.00 by \$278,000.00. The installation there has been decreased from \$10,030,000.00 by \$407,000.00. The access roads have been increased from \$719,000.00 by \$80,000.00. The river crossings have been increased from \$2,028,000.00 by \$203,000.00. The railroad crossings have been increased from \$43,000.00 by \$9,500.00. The highway crossings have been increased from \$216,000.00 by \$51,000.00. The purge, cleaning and testing have been decreased from \$84,000.00 by \$6,500.00. The measuring stations have been increased from \$142,000.00 by \$4,000.00. The sales tax has been increased from \$345,000.00 by \$701,000.00. That was, I think, just an arithmetical mistake. The contingencies have been decreased, they being based on 10 per cent of the whole, by \$28,381.00. This

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makes an adjustment on the whole from \$41,661,000.00 of \$734,000.00, bringing it to \$42,396,000.00 as it is in Exhibit 66.

Q There is one other question. I think it is in regard to the deviation in the Canadian main line. Would you deal with that?

A I have no way to deal with that.

Q I mean, that is your answer to my question?

A Yes. I mean, I can not testify for Mr. Goodbody. Now, I believe you asked me another question, and that was in regard to the estimated construction costs of the Northwest Natural Gas Company 24-inch line, the Alberta Natural Gas Company 24-inch line, and the Alberta Natural Gas Grid Limited 24-inch line. Well, taking the Exhibit 15 with the corrections, the Northwest Natural Gas Company 24-inch line is 373 miles. Installation cost items are as follows: Access roads \$800,000.00; installation \$6,068,000.00; contractors' moves \$120,000.00; contingencies \$699,000.00; contractors' fee \$1,439,000.00, giving a total of \$9,126,000.00, or a cost per mile of \$24,453.00.

The Alberta Natural Gas Company, Exhibit 15 with corrections, the length of the line is 170 miles, access roads \$119,000.00; installation \$2,930,000.00; contractors' moves \$60,000.00; contingencies \$311,000.00; contractors' fee \$808,000.00, making a total of \$4,228,000.00 or \$24,870.00 per mile.

Now, we now have Alberta Natural Gas Grid Limited, Exhibit 65. Length 143 miles, installation costs -- this is from Exhibit 65 --

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\$2,084,000.00; installation costs includes all expenses and fees. Contingencies \$104,000.00, making a total of \$2,188,000.00, or total installation costs per mile of \$15,247.00 per mile.

Q That is just on the Alberta Natural Gas, Mr. Dixon, again. What were those figures again?

A The installation costs \$2,084,000.00; contingencies \$104,000.00, total \$2,188,000.00. The length of the line 143.5 miles.

Q I was thinking about the main line in Canada from Pincher Creek Station to Kingsgate, the second group of figures.

A You want me to repeat them?

Q Yes, please.

A Access roads \$119,000.00; installation \$2,930,000.00; contractors' moves \$60,000.00; contingencies \$311,000.00; contractors' fees \$808,000.00, giving a total of \$4,228,000.00 for a distance of 170 miles, or \$24,870.00 per mile.

Q I was just wondering where you got the contractors' fees at \$808,000.00?

A That is Mr. Goodbody's. Mr. Copp can tell me that. 10 per cent.

Q That will be 10 per cent of \$8,000,000.00, that is what I had in mind. Contractors' fees were 5 per cent according to your Exhibit 15. I was wondering why you got \$808,000.00.

A Maybe it would save time if I could answer that a little later.

Q Yes.

A I was working late last night and I do not just remember

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what I did. Maybe we made a mistake.

Q THE CHAIRMAN: Had you any other information
to put in, Mr. Dixon?

A That is all.

Q MR. McDONALD: So that I can consider this
for a few minutes. On your Alberta Natural Gas, again,
Canadian main line, your \$119,000.00 is for what, again?

A The which?

Q The Canadian main line?

A The Alberta Natural Gas Company, 170 miles, 24-inch?

Q That is right, yes, then your \$119,000.00?

A Access roads.

Q And your \$2,930,000.00?

A Installation.

Q Revised item for installation?

A That is installation.

Q \$60,000.00?

A Contractors' moves.

Q And the \$311,000.00?

A Contingencies.

Q And then the contractors' fees is a matter you will adjust
or you will consider again?

A Yes, I will have a look into that.

THE CHAIRMAN: Mr. Nolan, I think we will
mark this summary of adjustments here as Exhibit 73.

SUMMARY OF ADJUSTMENTS OF
ESTIMATED CONSTRUCTION COSTS
PUT IN AND MARKED EXHIBIT 73.

MR. C.E. SMITH: What is it called, again,
please?

A. Faison Dixon,
Cr. Ex. by Mr. McDonald.
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THE CHAIRMAN: "Summary of Adjustments of
Estimated Construction Costs".

MR. McDONALD: I was wondering, sir, is Mr.
Milvain going to continue?

THE CHAIRMAN: I will let Mr. Milvain con-
tinue. If you want a copy of this Exhibit 72 you can have
it in the meantime.

CROSS-EXAMINATION BY MR. MILVAIN:

Q You will recall, Mr. Dixon, that when we adjourned yesterday
we were discussing the extent to which you would reach
saturation in some of your markets at the Coast, and I think
you came to this point, you came to the conclusion that your
Portland market would be fairly well saturated but the
Seattle market would not be saturated to any great extent.

A This is the third year?

Q At the end of the third year.

A I did not say it would not be saturated in great extent,
it would not be saturated as much as Portland would be.

Q Are you in a position where you could say in even rough
figures what your percentage of saturation would be?

A No, I am not. All the testimony in regard to the markets
was given by the people from those companies and I would
not like, excepting in a very general way, to be trying to
pass on their testimony.

Q But you do feel that so far as the Seattle area is con-
cerned there would be still a considerable field into which
expansions might take place?

A I think it is a more likely hope there than in Portland.

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Cr. Ex. by Mr. Milvain.

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Q Would that be true also in Vancouver or not?

A I think Vancouver is better piped and better saturated than Seattle.

Q But you would not anticipate that at the end of three years you would have reached an extremely high saturation point in Vancouver, would you?

A Yes, I think Vancouver would have done pretty well.

Q Above or below 75 per cent?

A I should think above.

Q Above or below 90 per cent?

A Below.

Q Somewhere between 75 and 90?

A Yes, somewheres in there. I would like to just check the remark that saturation is only a relative term. A town is never saturated, there is always a chance of an increase.

Q There is a natural growth takes place in all communities that keeps your saturation point moving forward?

A That is it, you never reach 100 per cent.

Q And in these areas you seek to serve, you would anticipate that there would be a normal expansion going on beyond that which now exists?

A That is true.

Q So that if at the end of the 3-year period you have come to the point where you are then supplying the whole of your 80 billion per year, then you would not have sufficient gas to look after the normal expansion unless further gas were found?

A That is true.

Q Now, I would like you, just for a moment, to look at

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Exhibit 65, page 2, and there you say in the paragraph on that page that there is a potential market for natural gas beyond the 80 billion cubic feet annually for which this permit is requested. I am wondering if your idea of a potential market is something beyond those communities that are shown on Schedule 1 of Exhibit 66?

A Chiefly.

Q Your potential market would be an extension of the markets that are shown on this exhibit, that is, Schedule 1 of Exhibit 66?

A Yes.

(Go to page 2074)

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Q May I take it, or may I take it from that that you do not consider that you would expand into other areas that are not shown on this exhibit?

A You mean with only our 80 billion?

Q Well, I am wondering, Mr. Dixon, when you speak of all this potential market for natural gas?

A Well, there is a very large market outside of the area which we presently expect to serve, which is shown on our map.

Q I see.

A And we have not, or would not have enough gas to serve it.

Q Pardon?

A We would not have enough gas, in other words, to serve outside of the market than are in exhibit 66.

Q So that then, I take it, when you use those words in exhibit 65, that there is a potential market for natural gas, that that market lies in communities that are in addition to those that are shown on exhibit 66?

A Yes, sir.

Q But that it would be impossible to expand into that potential market unless and until further gas supplies were obtained?

A That is correct. Of course we will be under the control of the Federal Power Commission and we will have to allocate this gas according to what their instructions are, excepting in regard to the Canadian Market, which will get all it wants all the time.

Q Of course, that is quite correct, until you have a permit from the Federal Power Commission, no matter how many contracts you have up here in Alberta, you would not be able to supply a customer in the United States?

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A Or I do not suppose you could even go through the United States.

Q That is right. You probably could not go through the United States at all, but you certainly could not supply any customers there until such time as you satisfied the Federal Power Commission of the United States of the feasibility of your scheme and the service it will give to your customers there?

A Correct.

Q So that I suppose when you apply to the Federal Power Commission you must satisfy them not only of the feasibility of your scheme, but the adequacy of the service that it will give?

A That is true.

Q Well, then, I take it, to come back to your remarks about the potential market, what you have in prospect is that if additional reserves should be found in Alberta, which are sufficient to look after Alberta needs in addition to what you hope to take under this permit, that then you would consider seeking further export permits from Alberta?

A That is our intention.

Q And if that were then done, you would seek not only to expand your market in the communities shown on exhibit 66, but you would expand into additional areas that are not there shown?

A That is correct.

Q Now, then, I would like you to look at exhibit 66 for a moment, Mr. Dixon?

A Yes.

Q And at this same schedule 1 that appears on page 4, where you deal with the various areas in Canada and the United

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States?

A Yes, sir.

Q And perhaps you will tell me this, Mr. Dixon, has there been any evidence put on the record through other submissions of your company that would break down the requirements as between the categories of customers, that is, domestic, commercial and industrial?

A Yes.

Q That is already on the record?

A That is already on the record, yes, sir, in great detail.

Q So that I am not going to ask you to go into that, into all that now, if it is already there. I just wanted to make sure it was, Mr. Dixon. Do you know if that information gives you your house-heating customers, space heating; and so on?

A There were long submissions, which started at exhibit 5, going through exhibit 13, and I cannot remember just exactly everything that was in them, but I think they did have estimates in all cases of the house heating customers, and made estimates of the load factor that they would have.

Q And that information would be broken down as to each individual community, would it?

A Yes.

Q Can you give us a rough idea as to what the house heating saturation would be at the end of the third year throughout the whole system?

A I cannot remember. It is very high.

Q Do you think that information would be in these other exhibits that you mentioned?

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A It is in these submissions.

Q Very good. Did you ever work out an estimate as to what the requirements at the end of the tenth year of operation would be, or any year beyond those that are shown in these exhibits?

A Oh, yes.

Q Yes?

A According to this exhibit there were 80 billion. Of course, this is the limit of all we can do.

Q But on the basis of a normal expansion that would take place, assuming you could get the gas to supply your needs, did you make an estimate as to what the requirements would be also at the end of the tenth year?

A We have made estimates. On assumptions of building various lines and adding those, we made many such estimates.

Q In that case, moving step by step, as I understand it, your requirements at the end of the third year will absorb the whole of the 80 million?

A Something on the order, if times are good.

Q Yes. Now, at the end of, we will say, the tenth year, what would the requirement be, how much in addition to 80 million would the total be?

A That is just a matter of how much gas we can get. I think we could put on another 40 million almost immediately, if we had the gas.

Q That would be another 40 million almost immediately?

A 40 million thousand cubic feet a year, I meant to say.

Q That is right. And when you say "almost immediately" you mean right at the end of the third year?

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Cr. Ex. by Mr. Milvain.

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A As soon you have built the lines to other points, it would take another three or four years to build it up, but it could be done very quickly if we had the gas.

Q What I am getting at is this, Mr. Dixon, if I understand you correctly, by the time you get to the end of your third year you will then be absorbing the whole of your 80 million that you are applying to get?

A Yes.

Q And you tell me that you could add another 40 million almost immediately.

A Yes.

Q Do you mean by "almost immediately" right after the end of the third year, right after the end of the fifth year, or when?

A Well, that would all depend on when we got the gas. You see, supposing we had it now, we could then probably add that at the end of the fifth year, say, if we had all the gas that we want now.

Q Well, I am saying, let us assume that you start off with this system that you have now in prospect?

A Yes, sir.

Q And that is a system which, I understand, will absorb the whole of your 80 million at the end of the third year?

A Yes, sir.

Q According to your estimate?

A Yes, sir.

Q Now, then, do you see the prospects of expansion, what prospects you would have after that, if you could get gas? Would you have prospects?

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A Why, yes.

Q How much additional gas would you need, according to your present estimates, we will say, at the end of the tenth year?

A 125 billion a year, or something like that.

Q 125 billion?

A Yes, and if we could get the steel and the gas we could be using that 125 long before the end of the tenth year.

MR. C. E. SMITH: You people are bandying around Mcf's and cubic feet here in a way so that the record will be all mixed up.

Q MR. MILVAIN: In that event, you will be adding additional length to this system and going into a very different area, into a further and different area, and let us assume that you just expand your existing system, your then existing system, to supply the communities which would be then hooked up with it?

A I do not understand you.

Q You would have a system that serves the various communities that are shown in exhibit 66?

A Yes, sir.

Q At the end of three years you will have expanded your sales to those areas to the point that they have then absorbed your 80 million, or, I should say, 80 billion cubic feet per year, that is correct is it?

A Yes.

Q Your sales in those communities then being served at the end of the three years could be expanded, I take it?

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A Yes.

Q Now, if you were to expand the service in order to, or expand your sales in order to service those areas, how much additional gas would you need?

A If you mean just the areas we would be serving at the end of the supply of 80 billion?

Q Yes, and that is with this system?

A I do not know. It would be natural growth of the towns. We would be supplying, I think, at the end of the third year all of the requirements for gas, all they have asked for. They have made requests for gas, and I assume they are asking for all the gas that they want, so that we assume that at the end of the fifth year they will be getting all the gas that they want in the towns under the contractual arrangement.

Q Yes.

A So that I do not see how we can estimate any more gas at those towns excepting the normal growth of 5 or 6 per cent per year.

Q Well, then, I take it, Mr. Dixon, that your estimate of requirements with regard to this system do not extend beyond the fifth year? You have made no estimates beyond that time?

A Not for the record.

Q Not for the record?

A No.

Q But have you made it so that we can put it on the record now?

A I have not got that available. It has nothing to do with this present hearing, as we are only asking for 80 billion cubic feet per year.

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Q I realize that very fully, that you are only asking for 80 billion cubic feet per year, Mr. Dixon, but if I understand you correctly, according to the evidence you have already given, you will have reached the point at the end of three years in which your system will have sales expanded to the point that it will absorb the whole of the 80 billion, but that when you have reached that point, the communities will still have an unserved area of expansion within the community itself?

A Well, if you will change the three to five, I think that might be correct.

Q Yes?

A I do not know because I am assuming that the people who have made the two contracts we already have, and the others, I suppose, will make estimates similar to those in comparison to their former estimates, that there will be at the end of the fifth year enough gas at those towns, or for those towns, according to the estimates of the present distributing companies in those towns.

Q Yes?

A Now, that includes, as I said yesterday, a great deal of gas. I suppose as time went on and there was no increase in gas supply that industry would be cut back and the domestic consumers would get more gas. That would be the inevitable development. Like any other community where you have a limited supply of gas coming to it.

Q That would be the effect that would have to take place, somebody would have to be curtailed?

A Yes.

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Q To make room for somebody else?

A Yes.

Q And would that have the effect of raising the price to the domestic consumer?

A I do not know. That will be under the regulations.

Q It would change the general load factor of the distributing agency, wouldn't it?

A Not necessarily. Apparently they are now, since they know they are going to have a demand commodity rate, they are thinking strongly of the subject of cutting peaks, so that I do not think it would affect the price much.

Q After you get to the point, Mr. Dixon, that you have cut off your industrial load, and your gas is being supplied to domestic consumers, your load factor cannot help but go down?

A That is the over-all load factor.

Q Yes?

A Of course that would go down, but if you have facilities your cost of peak gas that is used would be cut also.

Q Wouldn't your ability to cut off your peak be dependent upon what your industrial market was?

A Not necessarily, because you have stand-by equipment. They are all planning stand-by equipment. I believe Portland now has approximately 20 million-a-day standby, and 10 million-a-day holding capacity, so that they are in a beautiful position in that regard.

Q And your stand-by equipment would have the effect of raising costs, would likely have the effect of raising costs, wouldn't it?

A Somewhat.

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Q And is stand-by gas more expensive?

A Oh, of course.

Q So that the likelihood then would be, that as you increased the use of that stand-by gas, especially to domestic consumers, that your load factor would go down, or your price, at least, would go up?

A Very slightly under those conditions.

Q I noticed in exhibit 61, the same schedule 4, Mr. Dixon, that it shows a direct industrial load in British Columbia as being three million?

A Yes.

Q Does that all go to the Consolidated Mining & Smelting, or are there some other direct customers?

A That is all Consolidated.

Q That is all Consolidated?

A Yes.

Q So that there are no direct industrial customers other than the Consolidated people?

A Not that we are contemplating now.

Q I see.

A Although, of course, they may come, I do not know. There is a paper mill projected in the general vicinity of Cranbrook and Kimberley.

Q Now, has information gone in through your other exhibits, Mr. Dixon, as to the use to which the gas supplied will be put?

A Where do you mean?

Q In the various places?

A It was in great detail, the testimony of the Consolidated

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Mining.

Q Of the Consolidated Mining?

A The Consolidated Mining & Smelting in regard to the use of, I believe - you asked the questions with regard to that.

Q Yes. I am wondering from your own material, though.

A I do not think that in any of these exhibits that they gave great detail in regard to just which customers, what the direct uses would be, as I remember.

Q What I am getting at is this, Mr. Dixon, did your company make a survey of any kind which would indicate the uses to which the gas supplied direct to industrials would be put?

A Yes.

Q Did you make a survey yourself of the field that was covered, for instance, by the Consolidated people?

A No. Of course, we took just their information. That was all anyone could take.

Q So that the information that you have in regard to the Consolidated people is what they themselves gave here a day or two ago?

A And before that they gave it to us as well, the same information.

Q Yes. Now, did you make a survey to get the same information with respect to the other direct industrials?

A We made surveys, visited all the industries around in the neighbourhood.

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Q Take, for instance, one of your prospective direct industrial users, this Hanford plant. Did you make a survey there?

A No, sir.

Q To find out what use it would be put to?

A No, sir.

Q Do you know, will it displace the use of coal?

A I do not know, and if I did know, I could not say anything.

Q Well, you were at Hanford and you probably were able to see whether or not there were any coal cars around?

A You are put under obligation as soon as you walk in there to repeat nothing of what you hear or see.

MR. C.E. SMITH: Sounds like in a white flag
blindfold, in this case.

Q MR. MILVAIN: Well, most of the people in
the neighbourhood would be able to see whether coal cars
go along the railroad track?

A Well, you will have to go around and have a look.

Q You are in this position, even if you did see some coal cars you could not tell us at this Commission?

A Yes.

Q Or if you saw some oil cars you could not tell us you had seen them?

A That is correct.

Q And have you had some experience in other defence plants in the United States?

A Yes, sir.

Q Now, have you arrived at any conclusions as to what price gas can be delivered to the direct industrials at?

A Naturally.

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Q Is the price the same for them all, for instance, Hanford, Trail, Spokane, or is it different?

A You mean, Hanford, Trail, Spokane. Those are more or less in a unit excepting in the case of Trail, being a Government owned corporation or firm, I believe they get freight rates at one-half of the cost of anybody else.

Q As I understand the situation from your evidence, Mr. Dixon, it is this, that as we move along down the line you have a large direct industrial customer at the Consolidated Mining and Smelting plants at Trail and Kimberley?

A That is correct.

Q And then you have another industrial, that is, the aluminum plant at Spokane that you mentioned?

A Yes.

Q And you hope to take on the Hanford?

A Yes.

Q Now, there are three different points of delivery of industrial gas?

A Yes.

Q Now, are you selling to those three points at the same price per Mcf.?

A We are selling -- we expect to sell according to a demand charge of \$3.03 per Mcf. and a commodity charge of 18 cents per Mcf. to all customers all over the line.

Q And has any calculation been made as to what the price per Mcf. of gas to Trail would be on that basis?

A That is made in Schedule 1, page 4.

Q That is the average price per Mcf. that you give?

A Yes, sir. That is based on them having a load factor of

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95 $\frac{1}{2}$ per cent.

Q But when you give the average price, can you tell us what the top and bottom limits would be to give you that average?

A No. I do not think that question is capable of answering by anybody anyway.

Q I am just wondering, to get an average we usually have a top and a bottom?

A No. You might have a demand commodity rate, you have a load factor and it is a calculated price. You might have said "calculated price" in place of "average" for a better word.

Q You get the combination result from the amount of gas you use and their load factor?

A Yes, that is the way you arrive at it.

Q Now, did you make any investigation as to what would be the price of the fuel displaced in the areas you are serving direct industrial to?

A We have.

Q And what is the price of competitive fuels, we will say, at Trail, according to your information?

A \$10.00 a ton more or less for coal, \$3.00 for oil, I think. \$3.50 for oil.

Q Those were figures given by the Trail people?

A Yes, sir.

Q What is the situation with regard to the aluminum plant in Spokane?

A It is high priced oil and about the same for coal as Trail.

Q In the neighbourhood of \$10.00 per ton?

A That is correct. That is according to my memory. It is hard to remember all of the figures.

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Q Was that for powdered coal or stoker coal?

A Stoker coal.

Q Was a comparison made with anything other than stoker coal?

A Coal is fairly high priced there.

Q In Spokane?

A Yes.

Q But you say the stoker coal in Spokane would be in the neighbourhood of the same \$10.00 price as Trail?

A A little higher, according to my recollection.

Q And the oil in Spokane, how did it compare?

A That is a little lower.

Q A little lower in Spokane?

A Yes.

Q How much lower, do you know?

A About 50 cents, as I recall.

Q And what would be the situation in Hanford?

A I don't know.

Q And the gas that is used at the aluminum plant at Spokane, what use would it be put to?

A I think heating ingots for rolling, I am not certain. It is a plant that is being built, it is not now in operation.

Q Is any of it intended to be used as boiler fuel, do you know?

A It might be but I am not certain of that.

Q Have you negotiated the sale with the aluminum people?

A No, we have not.

Q You have had discussions with them?

A I believe Mr. Copp had discussions with them, I did not, personally.

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Q So the discussions with the aluminum plant are on a purely tentative basis, is that the situation?

A Everything in Spokane is on a purely tentative basis.

Q There has been no arrangement made whatsoever?

A No, sir.

Q I notice on your exhibit that there are no direct industrial sales in Oregon. Is the reason there that the Portland Gas & Coke Company reserve that right themselves?

A That is true.

Q So that you can make no direct industrial sales?

A Not in the area covered by the Portland Gas & Coke Company.

Q I see. But if you could reach areas that are not covered by them would you then feel free to expand to those areas?

A Oh, yes.

Q Do you know how much of the gas that you are supplying to the Portland Gas & Coke Company will be supplied by them to industrials?

A No, I can not answer that. I believe that can be found in their submission here, in Exhibit 8.

Q In Exhibit 8, I see. Because, according to your Exhibit 66, Schedule 1, the total that goes to the Portland Gas & Coke Company is 23 million 191 thousand, and I was wondering if you knew what part of that would be used industrially?

A I can not recall.

Q And do you know at what price they will sell?

A No, sir.

Q Is that information in this Exhibit 8 you speak of?

A The price they will sell?

Q Yes?

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A No, sir.

Q Or is there anything that you know as to what use the gas that they sell industrially will be put?

A I think they have that in that exhibit but I can not recall.

Q So far as you are aware, you know nothing about it, if it is in that exhibit that is the only place we will find it?

A That is right.

Q Now, it appears that the average price of the sale of gas to the Portland Company is 31.89 cents?

A That is on the basis of a load factor of 72.18 per cent.

Q Now, do you know whether or not their large industrial sales would be made above or below that figure?

A This would just be a case -- I have no right to be testifying on other people's territory, but just as a general principle I do not think they will sell any gas below that figure.

Q You think they will sell none below that?

A Of course, with a demand commodity rate to hold your load factor up it is advantageous very often to sell gas below the average cost of your gas, but I doubt if they would have need to do anything like that there.

Q So the likelihood is it would be sold at not less than that figure?

A That would be my idea.

Q Now, from the fact that direct industrial sales will be made at a 96.40 load factor, that would indicate that there would be very little interruption in sales?

A Naturally.

Q Now, just generally speaking, Mr. Dixon, is it your feeling as a man of considerable experience in this field that

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using gas as a boiler fuel is not the best way of using it to get the most good to the public?

A I have very little feeling in the matter. You are speaking of feeling. I would like to sell gas to anybody that would take it and pay for it.

Q So you do not give consideration as to the greater or lesser social benefits that might flow from the use of the gas?

A I do not think that is my function.

Q No. As long as you can sell the gas that is all that matters.

A You have regulatory bodies and laws and regulations I think sufficient to take care of such matters.

Q Now, I take it from the whole of your evidence, Mr. Dixon, that you are very anxious to keep your own system's load factor at as high a figure as you can keep it?

A The load factor?

Q That is, your own load factor?

A Naturally.

Q And if you keep it at a high figure your are able to make a better deal with your supplier?

A Well, we already made the deal with the supplier. Our deal with the supplier forces us to think very carefully on the subject of load factor.

Q That is right. Now, so far as the supplier is concerned, it is much more advantageous to him to sell his gas to a purchaser with a high load factor than it is to sell it to a person with a lower load factor?

A That depends on the type of supplier. In a case with wells such as Pincher Creek, it is a great advantage to have steady production, but with wells such as those in the

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fields out on the plains where there is no, practically no liquid with them, it doesn't make so much difference. All they want is to sell so much gas throughout the year.

Q If they are selling to a purchaser who has a high load factor, that purchaser will take more units of gas than one with a poor load factor?

A Not necessarily. I mean, it is from the same wells and taken at the same rate.

Q I mean, other things being equal?

A Other things being equal, but they would rather sell 10 billion a year at a low load factor than 5 billion a year at 100 per cent load factor.

Q Quite. But when you get your end dollar result, if you are dealing with a purchaser who has a high load factor and consequently takes more units, that is, units that you can supply?

A You are joining two things together that are not connected. You do not take more units because you have a high load factor.

Q But other things being equal?

A It all depends on how much demand there is for the gas in relation to your supply. You are joining two things that have no relation.

Q Wouldn't it be so that so far as -- take your own system just as it is, no other changes made, but you decreased your load factor, you would not take as much gas from your supplier?

A We take just exactly the same amount because we are limited to our 80 billion.

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Q You would be a more or less desirable customer to serve?

A Of course, they would have to drill fewer wells the higher the load factor, they can give the same amount of gas with less wells, so it is advantageous as far as that is concerned but what they want is large markets for their gas and they do not think much about the load factor.

Q And they can deliver at less cost to themselves when they are delivering to a high load factor customer?

A That is correct.

Q And, accordingly, that would put the supplier of gas in a position where he could have two potential customers both perhaps going to take the same actual volume of gas and he would prefer to sell it to the one with the high load factor than the one with the low?

A That is correct.

Q And if he was going to sell to the man with the lower load factor, he might jack up his prices a bit?

A He would try to, certainly.

Q That would be the effect of the general set-up?

A Yes.

Q So would you think that the effect of your proposal going into effect would be to perhaps increase the field prices in Alberta?

A Not necessarily so. It may have just the opposite effect.

Q Could have, of course, but wouldn't you think that the likelihood of your starting off at 10 $\frac{3}{4}$ cents and gradually going up to 15 will have the effect of increasing the field prices in Alberta?

A As I said, I do not think it is likely that this project

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would increase the price of gas in Alberta to their consumers.

Q You think that other suppliers, producers, of gas in Alberta would be content to sell gas for less than the people in the Pincher Creek field, for instance, are getting up there?

A Suppliers of gas are never content.

Q They are never which?

A Never content.

Q And when they see somebody else getting more it makes them less content?

A That may be, but if you remember all through the gas fields of Texas and even right here in Alberta there is a great difference of prices from field to field.

Q Tell me this, too, Mr. Dixon, as a field grows older is it your experience that the price of producing it goes up or goes down?

A The price of producing the gas?

Q Yes?

A Well, after the field is drilled up then the cost of producing the gas in all cases is very small anyway. It is the cost of drilling your initial wells which is the major cost of any field and there might be a very, very slow increase, a small fraction of a cent difference in taking care of the wells.

Q Isn't it so that when a field gets older the cost of producing from it is more than when it is a new field?

A As I said, it is the original cost of drilling the wells is the chief cost of the gas to the producer, and buying his lease, and all of that, and after that the cost is

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more or less constant.

Q Although in the earlier stages of the field's productive life is the period during which you would expect to get what is commonly called the cheaper gas?

A That is not necessarily so. That all depends on the market.

Q Well, isn't it in the general teaching of experience that the so-called cheap gas comes off in the earlier years of the productive life of the field?

A Not necessarily so. I think you are confusing two things, one is the cost of producing gas, the other is the price which you can get for it. They sometimes are only remotely related.

Q I am thinking of what it might cost the consumer by the time he gets it into his burner.

A Well, as a general thing, at the later stages of the development of the field the consumers are getting the gas a lot cheaper than they got it before because the amortization of the lines and the whole plant has already taken place and the regulatory bodies have to cut down the just earnings of the pipeline companies.

Q The thought that comes to my mind, Mr. Dixon, and I would like your reaction to it, let us assume the Pincher Creek field for a moment from which you seek to take the major part of your supply, I say, let us assume that you do take gas from that field for a period of 15 years, 20 years, and then find that that field becomes too expensive to buy gas from, you would go and seek fields elsewhere, isn't that right?

A No, unfortunately if that happens we stick with the contract.

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Q Well, perhaps you might go to the Canadian Gulf and tell them you just can not buy any more gas from them at that price.

A I would hate to think what they might say. I do not think we would ever do any such thing.

Q They might say to you, or they might make an agreement, that they have got to reduce prices if they are going to continue to sell. That is so if your system can not continue to supply economically the gas at the other end of the line, you would have to go out of gas and they would have to stop selling gas.

A I would look at them with tears in my eyes and ask them what they could do.

Q I am wondering this, too, Mr. Dixon, in the event of your operation expanding, have you given any consideration to sponsoring drilling programs or exploration programs to find more gas?

A Yes, our associates in the company have been very active in the drilling of wells and I think many of them will even continue more so.

Q Is that attention turned toward Northern Alberta?

A No.

Q Now it is not turned towards Northern Alberta?

A Some of them have done work in Northern Alberta, pardon me. I mean, the future of those things I happen to know about and interested in myself.

Q Perhaps you will agree with me from the point of view of the Province of Alberta that the development of the Northern area would be of great advantage?

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A The development of any area would be of advantage.

Q And from the point of view of revenue from the sale of leases the greatest prospect of the Province of Alberta lies in the north rather than in the south?

A No, sir.

Q You think that is not true from the point of view of the Province of Alberta?

A No, sir.

Q Their revenue in the south will come from the sale of leases or from royalties on the sale of gas?

A I think the big revenues that come to the Province are due to the fact, except being able to sell leases on areas already proved, I think the prospects would be much greater in the south, that other fields will be found and these very large prices per acre will be paid for the Government reservations between the proven areas and that will be a repetition of what has happened in the region of Leduc and Redwater and the Government will get large sums. The amount they get from the sale of the leases by development is not a very considerable amount comparatively speaking.

Q And your feeling then is that the greatest advantage will come from the southern area rather than the north?

A What do you mean by the southern area?

Q Perhaps you will tell me what you mean by the southern area?

A Everything south of Edmonton.

Q Everything south of Edmonton?

A That is the southern half of the Province.

Q That is what I had in mind, too. You could roughly draw a line through Edmonton. And it is your opinion that the best advantage to the Province of Alberta would come from

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the development of the area south of that line rather than the area to the north of that line?

A I think probably. I do not think many would disagree with me.

Q Thank you, Mr. Dixon.

THE CHAIRMAN: We will adjourn for a few minutes.

(The Hearing then took a short adjournment.)

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CROSS-EXAMINATION BY MR. McDONALD:

Q Mr. Dixon, if I might continue and just deal briefly with the matter of your installation costs on your Canadian and United States routes?

A Yes.

Q I wanted to deal particularly with the United States or the Northwest Natural Gas Company route which comprises 652 miles and, which you pointed out, comprises 373 miles of 24-inch pipe?

A Yes, sir.

Q Now, I thought possibly the best thing I could do is to read you the figures as I took them from Exhibit 15, and make the additions that you refer to in your answer to my question yesterday.

A Pardon me, I am not going to testify on Exhibit 15.

Q I am not going to ask you to testify on that exhibit, I am going to ask you to take the figures from it and tell me whether I am correct?

A No, I will not tell you whether you are correct.

Q Well, will you tell me then how you arrive at the figure of \$9,126,000.00 you placed in evidence this morning?

A Yes, sir.

Q All right. Well, that is all I intend to do, Mr. Dixon. And as I understand from your exhibit, what you did do was add to the submission of Exhibit 15 certain items of cost that are therein contained, and arrived at your figure of \$9,126,000.00, am I correct, first, that that is right?

A That is right.

Q Well, then, I have made the same calculations of those,

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and taking Exhibit 15, and taking item 4, that is route B, Northwest Natural Gas Company, the amount involved is \$10,030,000.00. I will leave out the odd figures. Valves are included in the sum of \$167,000.00, which are deducted, leaving \$9,863,000.00; we add next rate base, \$719,000.00, we add item 18, contractor's ^{more} profits, \$240,000.00, then we add the increase in cost which you have given this morning, giving us a total of \$9,863,000.00; we then take the figures in item 4, referred to this morning, leaving \$10,496,000.00, and we add contingencies at 10% as per Exhibit 15, giving us a total of \$11,546,000.00. We add contractor's fees at 5%, which gives us \$580,000.00, making a total of \$12,126,000.00. You then told me this morning that of that total amount \$9,126,000.00 is applicable to the 24-inch pipe line, giving you an average cost of roughly \$24,000.00 . . .

A . . . \$453.00.

Q \$24,453.00?

A Yes.

Q Now, you agree with me that the remaining amount of money is \$3,000,000.00?

A I am sorry, I cannot follow you, so that I cannot agree or disagree.

Q Well, if my calculation is right, that is so. I take that \$3,000,000.00 and I apply it to the 22-inch and the 20-inch line in the total amount of 279 miles, and that gives a total of \$10,700,00 per mile. Now, I checked that against the sales lateral which, is, I think it was the Aldergrove to Vancouver lateral, and making the same cal-

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culatation, taking your installation costs of \$235,000.00, deducting the valves of \$3000.00, leaving \$232,000.00. Then adding your contingency of \$23,000.00, giving you a total of \$255,000.00, to which is added the contractor's fee, making a total of \$268,000.00, and dividing that by 27 miles it comes to \$10,000.00, that is, the 22-inch pipe installation. So that my calculation of \$10,700.00 per mile is approximately correct, would you agree with me?

A No. I do not know, rather, I should say.

Q You do not know?

A My answer as to whether I agree or not, when I said "No", that is because I do not know.

Q Did you have a different method for calculating the costs of your laterals than you did for your main line?

A I am not testifying on this exhibit. It is Mr. Goodbody's work.

Q All right. Well, Mr. Dixon, you agreed with me yesterday that 10 cents per ton-mile for hauling pipe, which is included in your installations, is a fair charge?

A We have presented the costs of our estimates, and what Mr. Goodbody has considered. It all depends on the route. It makes a tremendous difference.

Q We dealt with it yesterday?

A I do not believe I ever made any definite statement on it.

Q Well, we arrived at it in another way, at a cost of freight, which is included in the installation costs, of \$2,520.00 per mile?

A Well, I do not understand that, but that is all right. I

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am not testifying to it.

Q Well, the record yesterday plainly discloses it, Mr. Dixon. I mentioned a figure, Mr. Dixon, and I have got your unit costs and the unit price per mile for load, haul and string for 24-inch pipe in flat country of \$1,705.00, semi-rolling \$2,130.00, rolling \$2,620.00, and rough \$3,410.00. Now, I am suggesting that you are actually including in your installation costs not only loading and stringing, but I am suggesting you are hauling that pipe around 160 miles before you string, so that my figure of \$2,520.00 . . .

A In reading the testimony, of Mr. Goodbody yesterday, which is in Volume 10. . .

Q Yes?

A . . . I think it is in the transcript of June 8th, 1950, he mentions that he was considering bringing the pipe to two points.

Q That is right,

A Seattle and Spokane.

Q Yes?

A And there wrapping it in the town and then stringing it from there.

Q Yes. Well, will you just tell me, and you can answer "Yes" or "No"; Is there any place in Exhibit 15 which Mr. Goodbody has included the cost of coating and wrapping that pipe at Spokane or Seattle, where he intended to do it?

A I cannot say.

Q You cannot say?

A No.

Q With regard to the method in which this exhibit was placed

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on the record, we do not know exactly what the freight costs are, but I have tried to make a fair deduction and if we make that I suggest we come to \$8,180.00 for the installation of your pipe, the 20-inch pipe, am I right or wrong in my figures?

A I do not know.

Q Now, for laying in practically the same country, one figure is by Westcoast, and that is \$14,400.00 without taking into account contingencies, and I am suggesting to you that if you had a cost of about \$14,000.00 or \$15,000.00 for laying your pipe, the 20-inch pipe, you would have a fair average cost, rather than this item of \$8,000.00?

A I cannot say. I cannot testify on that.

Q Well, now, let me understand it, Mr. Dixon. You are now telling me that you cannot give me a fair, average professional engineer's answer on this particular item?

A Now, if you will make it with no reference to any exhibit, or put it into something where I am not trespassing on any of Mr. Goodbody's work. . .

Q Well . . .

A . . . if that type of question were asked, and if I could make an offhand estimate, I would be glad to.

Q All right. Are we going to understand that you have now cut your qualifications as a witness before this Board down to that of a design engineer?

A I do not know that it would reach up to that of a design engineer. I have had experience in pipe line work.

Q Well, Mr. Dixon, I do not intend to spend much time on the matter. Let us take your comparison with regard to

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the cost, your cost of 24-inch installations, \$24,453.00 per mile. We have an exhibit on file from the Pacific Northwest Pipe Line Company, which is for almost the identical route, and for 377 miles there is an average cost of installations of \$33,000.00 per mile?

A Now, you have been asking me to testify in regard to Mr. Goodbody. . .

Q Yes?

A . . . and I did not testify, and I am not going to testify for anybody else.

Q Have you any explanation for the difference between the two?

A No, none whatever.

Q But, in any event, the difference between the \$24,453.00 and the \$33,000.00, is \$8,500.00?

A I think, as I remember it, they were going over different terrain, very different terrain, and it was not comparable at all.

Q And that will appear in the evidence?

A Yes, that will appear in the evidence. I may be wrong, Mr. McDonald, but I think it is much rougher terrain.

Q But you do admit that your figure of \$24,453.00 includes the freight from your central distributing plant?

A No.

Q You admit that?

A No, there is nothing like that taken, that is stringing.

Q That will also appear in the record. Now, the reason I went into these things, Mr. Dixon, was to suggest to you this, that if your costs, installation costs, made in 1950, in the early spring of 1950, are short, approximately

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\$6,000.00, after making allowance for all of the contingencies, and your contractor's profit, and your portion, that over 652 miles in the United States and 170 miles in Canada, which is 822 miles, your estimate is short about \$5,000,000.00?

A Well, if our estimate is short, it is short by any amount that you want to put on it.

Q Yes?

A But I do not wish it to be suggested in any way that I think you are correct.

Q Yes. And then if we take the present price of steel at \$140.00 per ton, contrasted with the price of \$125.00, we have a difference of \$15.00 per ton, for a total of 132,902 tons, which is approximately \$2,000,000.00.

A The price of steel is quite a little venture to determine. The last quotation, I said yesterday, was 16-inch pipe, and I heard it was \$124.00 a ton at Pittsburgh.

Q Well, we are thinking of moving pipe from Los Angeles. You have not got yesterday's quotation in Los Angeles?

A No, I have not.

Q I am informed the quotation is \$140.00 per ton for very large orders. Then we come to freight, Mr. Dixon, that we have discussed at quite considerable length. I am not going to take the figures that I used, but I am going to take the figures or the figure of \$16.00 as the figure that Mr. Goodbody used, and say that \$25.00 would be the freight delivered of your pipe, before hauling, before stringing, and that would give you a deficiency of \$9.00, and for 132,902 tons your estimate is short about \$1,200,000.00, if my arithmetic is correct, and my assump-

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tions are correct? That would be so if my arithmetic and my assumptions are correct?

A If your assumptions are correct and your arithmetic is correct, but I do not agree with anything that you are suggesting.

Q And then we come to compressor stations, Mr. Dixon, and we have discussed those at length.

A Yes.

Q I am going to suggest to you that the proper design for the purposes of consideration by this Board is that you should increase your installed compressor capacity by at least 7000 horsepower?

A Well, my opinion is that the estimate that we have given is in excess under present conditions, and that we have under our present contract. They are delivering most of the gas - 70% of the gas is delivered at Pincher Creek at 750 pounds pressure, approximately.

Q Yes?

A Wherefore we will not need as large a compressor station at Pincher Creek as we were contemplating in the original diagram.

Q Well, I am only . . .

A And with regard to the others, I will not even dispute with you on the others.

Q Now, Mr. Dixon. . .

A Pardon me, I want to go on. You have asked me a question.

Q Yes?

A I think we have sufficient horsepower.

Q Yes?

A You would not spend and should not have to spend any more

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money than you have to.

Q Yes?

A This is a coincidental peak over the whole line. It happens a few days a year. And I think it would be a waste of money to be putting in in the initial installation any more horsepower than you have here. So that I think our estimate of horsepower is excessive.

Q All I want to do with you, Mr. Dixon, is to just briefly compare your idea of the engineering of this particular line with the ideas of an engineer who has dealt with almost the identical line, that is, the Prairie and the Pacific Northwest line, and they show excess capacity to installed, or excess capacity of installed over required horsepower of some 36%; Trans-Canada Pipe Line, who are also looking at Pincher Creek gas, and I presume have the same interest in its deliverability as you have, they have an installed horsepower in excess of requirements of 22%; and the Westcoast line, which is quite a different type of line, I will admit, has excess capacity over required of some 38%, as designed and submitted in evidence?

A Now, have they taken that on peak day or average day?

Q That is the peak day, I understand?

A Coincidental peak day or estimated peak day?

Q Yes. I checked this and I am sure that I read them, at least, as maximum throughout. It is the same type of presentation you made yourself.

A Well, that is a difference of opinion.

Q Yes?

A I think they will be spending more money than they need to.

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Q Well, I am going to suggest to you, in any event, to make your submission comparable to these others, if for no other reason, that the addition of 7000 horsepower installation to your line would cost approximately \$2,000,000.00?

A Well, as I say, you could practically cut out three-quarters of the Pincher Creek station, and we could distribute it among the others, and bring it up to a greater extent. That is in our present contract that has been signed.

Q That is dealing with the compressors, Mr. Dixon?

A No, it is not.

Q I mean, I am just through dealing with compressors.

A Oh.

Q I am still troubled about this deviation in Canada whereby your line is short, according to my calculation, of 5 miles for the purposes of your estimate, and I just will explain it to you, to put it on the record, and then we can leave it as to what the actual calculations show. If you take your exhibits, as filed by Mr. Goodbody, Mr. Dixon, and you add up what purports to be scaled mileages and automobile mileages, you come to 170 miles. Now, Mr. Goodbody very clearly indicated in his evidence that it did not include deviation, and if you add up what is presented in Exhibit 15, you come to the same item, 170 miles. Now, all I wanted you to do was to take that percentage, where he added the 3% he estimated in his evidence, as I read it, that he did not add it, and I will give you a chance to correct it?

A Naturally, I am not correcting Mr. Goodbody's evidence.

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Q Well, for my purposes, I wish to put this to you, that you should also add to your estimate of cost, 5 miles at \$6,000.00 per mile?

A I do not agree with you.

Q You do not?

A No. Maybe he does not add that for a very good reason, that there is a distance there that he did not need to put in any additional mileage, I do not know.

Q Well, I mean, Mr. Dixon. . .

A I do not think I have any right to change his testimony.

Q I am not asking you to change his testimony, Mr. Dixon, I am only asking so that this Board will be able to ascertain exactly what he meant. He admitted that he had not done it, he should have done it, and if he had not done it he should have increased his costs by 5 miles.

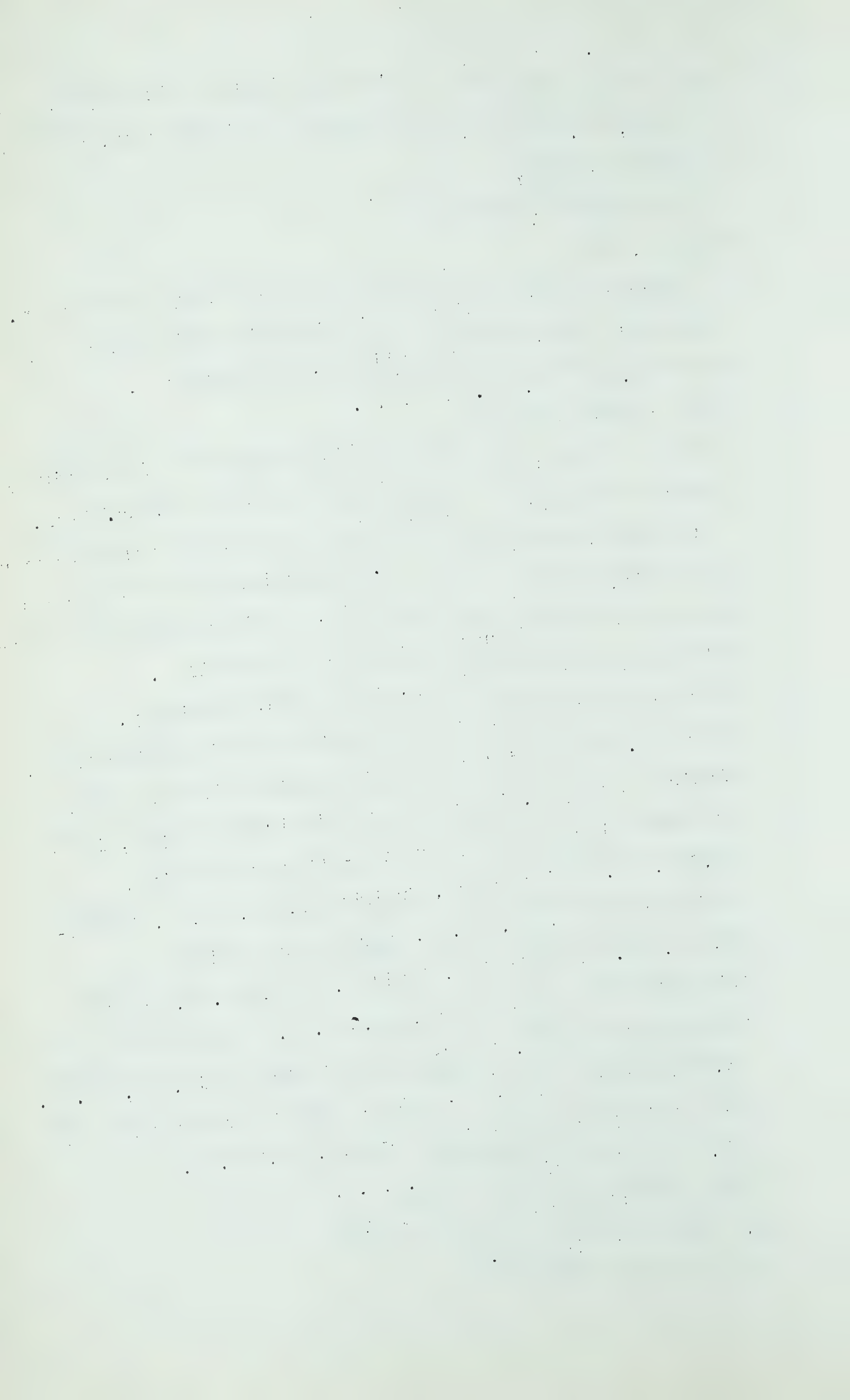
A If he made that testimony, that is his testimony.

Q You and I will serve no good purpose by discussing it any further. The point that I have in mind is that I have indicated to you, is what I have indicated to you, is the suggested increase in your over-all costs of pipe, \$2,000,000.00 difference, freight \$1,200,000.00, installation costs \$5,000,000.00, compressor stations \$2,000,000.00, deviation, 5 miles, \$300,000.00, and that brings it to a total of \$10,500,000.00. And if you add contingencies of 5%, it gives us a total of \$11,025,000.00. Now, I suggest to you, Mr. Dixon, that you could very well be short in your estimation that \$11,000,000.00.

A Well, conditions might change. . . .

Q On the conditions as they are now?

A No, I do not admit that.



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Q You do not admit that?

A No.

Q Of course, your views are subject to those of Mr. Goodbody,
I mean, he is the one that made the estimate?

A He made the estimate.

Q Yes.

A Well, he made it. It was then testified to by Mr. Swinerton.

Q Yes.

A And Swinerton is a contractor, and he said he would be glad to construct this line under the prices that are set out. That was sworn testimony by a very competent man who has built many pipe lines in very difficult terrain, and I do not think should be disregarded.

Q I think it will be obvious from the evidence that will be adduced by the Pacific Northwest Pipe Line Company, that two contractors can have a great deal of different views?

A Oh, you can see that when people make bids on the same line.

Q Now, there is only one thing I want to deal with, Mr. Dixon, and that is Exhibit 61. That is a contract between Northwest Natural Gas Company and Canadian Gulf Oil Company?

A Yes, sir.

Q And I want to refer you to paragraph 12?

A Just a minute.

Q Yes. Now, I would like you to tell me from your experience and knowledge of these affairs, is this a common type of provision in a contract between a transmission company and a producing company?

A In my experience it is the first such thing I have ever seen.

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Q Now, briefly, Mr. Dixon, and I am sure you have a figure in mind, just what increase in capital costs of your line would permit you to obtain the maximum deductions according to this paragraph, that is, 4/10%?

A I think it is about \$10,000,000.00.

Q I calculated it at \$10,400,000.00?

A Yes, something on that order.

Q Yes. So that the calculation that I worked out here just now, if that is a fair estimate, and I submit that as an estimator making an estimate with regard to the line, and I submit that your cost should be increased by \$11,000,000.00, if that did happen, the net result would be that you would have a reduction in price of 4/10 of a cent?

A Yes.

Q Just pardon me one moment, Mr. Dixon, I lost the other calculation. Then we come to the effect of such a variation in your investment, and I am going to suggest to you that if you had to add \$11,025,000.00 to your investment, your transportation costs would increase by $2\frac{1}{2}$ cents, 2.4 cents?

A It sounds reasonable.

Q It is in that neighbourhood?

A I could not say offhand, of course.

Q It is roughly proportional to the increase in investment?

A Well, there are a great many other costs. It is about a half, I would say.

Q I calculated it that by an increase of 2.4 cents, giving credit for the deduction in field price, that would leave you with a 2-cent net increase?

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A It looks to me a little bit high, your estimate of increased costs.

Q Now, there is one other thing that I find unusual in this contract, Mr. Dixon. I would be glad if you would just help me with it for general information, if for nothing else, and that is with regard to Exhibit 2. . .

A Yes.

Q . . . entitled "Price of Gas"?

A Yes.

Q You have in there paragraph 2 where there is a reference to an increase of the amount of gas transmitted from 80 billion feet to a maximum of 90 billion feet? 2(a) I am referring to particularly?

A Yes.

Q And as I understand it, that for all gas in excess of 80 billion feet, 5.15 cents will be added to the sales price by the producers?

A Well, from 80 billion cubic feet up to 90 billion cubic feet?

Q Yes?

A In that space.

Q Yes?

A There will be 5.15 cents per thousand cubic feet added.

Q Now, that extra gas need not necessarily be purchased from the Pincher Creek field?

A No, it would not be.

Q No?

A It possibly would not be.

Q Yes?

A Unless Pincher Creek develops larger reserves than is contemplated.

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Q Yes. As I understand it, that 5.15 cents will be spread not only over the Canadian Gulf Company, which might not produce any of the gas at all, but also all the other producers who are delivering to the line?

A Yes, sir.

Q And if it went up to 90 billion feet, what would be the average increase in costs of gas to you? Have you a figure in mind?

A It is not great. It is very small. Of course, it is only increasing a little over 10% of the total amount of gas, but it is a small amount. We had it all calculated out, but I have not got the Table with me.

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Q It would be somewhere in the neighbourhood of half a cent?

A Something like that.

Q Yes. As I understand your whole evidence and the whole scheme that you have presented, that if you exceed your 80 billion cubic feet you are going to have to have all of the investment required in your line to deal with the excess gas but at the same time you will have an increase in the cost of the gas to the line?

A We will still be able to sell the gas to the consumers at the contract prices.

Q Can you tell us from experience too whether this type of contract has been in general use in the United States for this type of calculating the increased transmission?

A No, I do not think I have ever seen it.

Q This is an innovation?

A No. The contracts we had before with the Imperial, Shell and the Standard of California had the same basic principle in them but worked out a little differently. You can see the result of a type of contract like this, it gives the advantage to the producer in the lower cost of transportation which otherwise would go to the pipe line and the consumer.

Q Just pardon me a minute, Mr. Dixon, until I catch up on my notes here. There is just one other matter I wanted to discuss with you and that is the matter of deliverability of the gas which you have indicated to supply this line. I understand that the four fields are Pincher Creek, Dunmore, Princess-Patricia and Britalta-Deep Rock field. Now, according to the evidence that was put in by Dr. Brokaw, the gas available for sale which he referred to in exhibit 29

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was 1529 billion cubic feet. Do you recall that figure?

A Available gas where?

Q From Pincher Creek field over 20 years?

A He took out that quantity. I do not think he said that was all there was available for sale, he was taking out that quantity. Is that exhibit 28? 28 has it summarized, the same figure, schedule "A".

Q No, Mr. Dixon.

A Is that it?

Q Have you exhibit 28?

A Yes.

Q Well, as I understand exhibit 28, if you will look on the first page, the number of fields are there, I am speaking of the gas available for sale in the ground or gas in the ground which can be produced. Look at exhibit 28 on the first page. Dr. Brokaw shows the raw gas reserves of 2300 billion, withdrawals during the 20-year period of 1126?

A That is correct.

Q But of the total reserves, that is, available for use, I believe is 70% he gives in the exhibit and it is 1543?

A Yes.

Q And then at Dunmore field, and I understand your submission to this Board as to the capacity of that field is 60 billion cubic feet, which you have obtained from the California Standard?

A That is right.

Q The Princess-Patricia, which you indicate as 244 billion cubic feet, that is again from exhibit 28?

A Yes.

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Q And then we have Britalta-Deep Rock?

A Pardon me. Princess-Patricia, it is 192 plus 156, 348.

Q Well, then, the Princess field, Mr. Dixon . . .

A That is the raw gas.

Q The raw gas is 348?

A Yes.

Q And I used a factor of 70%, having in mind it is particularly Jefferson limestone and Madison, two or three other different horizons, so it would give you a total of 244 at 70%?

A That would not be much off, I think.

Q It would be in that neighbourhood?

A Yes.

Q And then Britalta-Deep Rock, I accepted your figure of 346 billion cubic feet as being available from that field. I think you indicated that yesterday?

A Yes, the actual reserves estimated were 462 by Mr. Slipper.

Q That gives gas in place and behind your line of 2193 billion cubic feet?

A I think that is about right.

Q On the basis of annual requirements of approximately 80 billion cubic feet, that would give you years of gas in place in the ground of $27\frac{1}{2}$ years?

A Yes.

Q Now, then, let us contrast those figures to the amounts contained in the interim report of the Board. For the Pincher Creek field you agree with me the Board set it at 1170?

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A I do not testify regarding the Board.

Q You will agree with them that is right?

A I do not remember.

Q With regard to the Dunmore field, I suggest that the Board calculated the recoverable reserve at 19 billion cubic feet. Do you recollect that?

A I forgot they had the Dunmore field in at all.

Q The Princess-Patricia field, the Board calculated 101 billion cubic feet.

A I do not doubt your figures. Of course I cannot remember them.

Q With regard to Britalta-Deep Rock, the calculation presented by Westcoast, Dr. Nauss, is 90 billion cubic feet. Now, if those figures are right or accepted, I believe to these fields that would only give you a total of gas in place behind your line of 1380 billion cubic feet, and dividing that by 80 that would give you 17 years' gas in the ground without taking into account deliverability?

A We divide by 76 billion, to be accurate. If those figures are correct.

Q Of course, in arriving at the 79.8 we took into account unaccounted for and fuel?

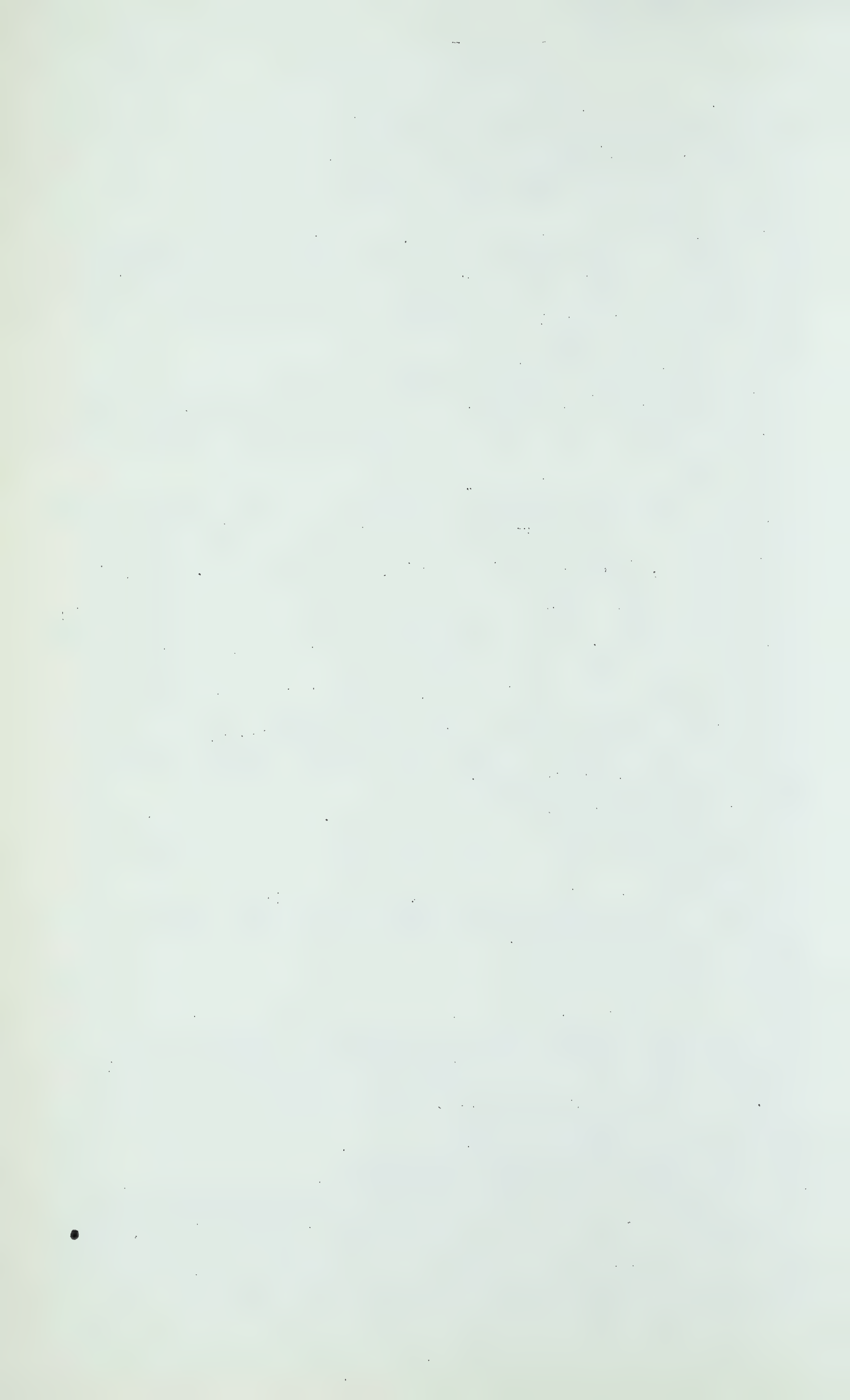
A Yes.

Q That was taken directly from your exhibit. There is the situation that you have to face here in dealing with this?

A Well, you are taking Mr. Nauss.

Q Only with regard to Britalta-Deep Rock.

A And the report of the Board is of some time back before they had received a very large amount of very able testimony, which was very different from the figures you have given.



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Q Now, that is just the situation that you have to meet or is before us. Now, let us take another situation. The interim report of the Board also dealt with the question of deficiency for the Calgary system. I am not referring now to deficiency from a deliverable aspect but only the amount that is required for the market, which is roughly 600 billion cubic feet. I suggest to you that if that 600 billion cubic feet is deducted from the Pincher Creek field, that would only leave you, on the Board's method of estimate, 570 billion cubic feet for export from that field, that is, 600 from 1170.

A According to the submission made by the utility companies, they do not want any part of the Pincher Creek field, it is entirely unsuitable for them under their testimony, and I think it is the generally accepted idea you cannot use the Pincher Creek field for local markets.

Q Well if the 600 billion feet is charged against this reserve of total as you have set up on your own figures, that would still leave you only with 1200 some 20?

A I think all of these questions are simply for the Board to decide.

Q Well, I am pointing out to you that my calculations are right. Your reserves of gas would only be then 15 years?

A Well, you are getting silly, I think, with the question.

Q And if you extend the proposition to the second premise I put to you, you would only have about ten years of gas?

A Well, as I say, you are getting worse.

Q Well, I think a lot of people here, Mr. Dixon, who have lived here for some time and intend to live for years afterwards, and have not just come in build the pipe lines, are very

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much interested in what I have asked you?

MR. NOLAN: Perhaps you will call those people
and they can give the evidence themselves, not you.

MR. McDONALD: I think I will leave that to my
learned friends.

CROSS-EXAMINATION BY MR. STEER:

Q Mr. Dixon, I have a few questions to ask you and the first
is in regard to exhibit 62, that is, the letter contract
between you and California Standard.

A Yes, sir.

Q And at the top of page 2, it is mis-numbered page 4, I will
just let you look at that?

A Yes.

Q I take it from your testimony that that contract has been
altered with regard to that clause which, as I read it,
indicates that you are to take the same proportion of California
Standard's reserves as you are taking of Pincher Creek's?

A No, I do not think it means quite that.

Q What does it mean, because there seems to me to be an incon-
sistency between your testimony when you said you were taking
228 billion feet from Britalta and California Standard and
that clause?

A We made two contracts. The same amounts from the California
Standard. There was a very small amount left over.

Q I am right in thinking, am I, that according to your plan
you are going to take 228 billion feet over the 25-year
period from the California Standard and Britalta areas?

A Maybe a little more from the Standard than we would take

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from the Britalta.

Q How much more?

A It might get up in the course of time to as much as about 17 million a day off-peak type of load, I mean, the peak type of load.

Q You did tell us the other day that the amount of gas you were going to take from the Britalta and California Standard areas was 228 billion feet. Did you tell us that?

A I said we had made a contract that we would take that amount of gas.

Q Yes?

A We would also have what we call the Dunmore area for some more gas. We still have a little gas that we could get, a very small amount, which would come in in the course of time in a great many years when we have reached the peak of production.

Q Would I be safe in saying that the total amount of gas that you propose to take from Britalta, California Standard and Dunmore would not be in excess of 500 billion feet over the 25-year period?

A It would be something on that order.

Q All right. Then over the 25-year period you require two trillion feet?

A Yes.

Q To comply with your contract with Gulf?

A Yes.

Q That is correct. It follows then that as it stands at present you are going to get all but 500 billion from the Pincher Creek field?

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A No, I do not quite follow you. We have a contract to take 156 million after the fourth year per day from the Pincher Creek field. We will be taking 25 million a day by contract from the Standard and Britalta and that makes 206 million a day we have under contract for the fourth year. Now, our estimates are somewhat in excess of that. We have a little tiny bit of gas we have got to still get to fulfil our estimated requirements.

Q What I am getting at, Mr. Dixon, is your view as to whether or not at the end of the 25 years for which you wanted this export permit, Pincher Creek field will be absolutely denuded of gas unless there is a lot more gas in there than we have had evidence of, is that right?

A It will be brought to a comparatively low deliverability. There will still be a lot of gas left in the field but they will not be able to deliver 156 million per day.

Q Have you any idea what they would be capable of delivering and what use would be made of it?

A It would still be good marketable gas, would still be good gas, but it will be coming out in decreasing volume after that.

Q Would it be any use to your pipe line?

A Why, of course it would be.

Q In what volume would you say it would come out?

A I have not got my figures here. I do not remember. Well, all I can say is it would be decreasing at a rapid rate.

Q Your evidence, Mr. Dixon, is that you are going to require 80 billion a year over 25 years and that you hope you will be able to sell more than that if you can get it?

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A Yes.

Q And this contract of yours, exhibit 61, contemplates that even over the period of 25 years, if you can get it, you are going to sell 125 billion a year?

A If we can get it.

Q 125 billion cubic feet?

A If we can get it.

Q If you can get it, yes. After 25 years' gas has been withdrawn from Pincher Creek at the rate which you expect to withdraw it, as you told us, would that supply be of any value for any major pipe line?

A Of course it would be of value.

Q As a source of supply for a major pipe line?

A Not as the sole source. It would just be something to supplement it. It would be like a small field.

Q Yes. Then will you look at this contract, exhibit 61, for a moment with me?

A That is the Gulf contract?

Q Yes, the contract between two Delaware corporations. That is the first thing that strikes you?

A One is the Canadian Gulf Oil Company.

Q They are both incorporated in Delaware?

A The contract also, if you go further on, says it can be assigned to the affiliates of either one.

Q This contract itself is a contract between two Delaware corporations, that is correct, isn't it?

A That is true.

Q Dealing with a Canadian natural resource, that is correct?

A That is correct.

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Q And providing for the consumption of that natural resource very largely in the United States of America?

A No. I would answer that in the negative.

Q And what proportion of this gas is to be used in Canada and what in the United States?

A As far as the gas itself is concerned that will go out, there is about a quarter being used in Canada, but so far as the other products that must come out with the gas are concerned, I think most of those would be used in Canada, and that is much more than twice as much as the value of the gas.

Q Oh, yes, we have got to dispose of those other ingredients, if we can, in order to provide the gas?

A I would look at it in another way, that you get the other ingredients and the natural gas comes out as a by-product.

Q Quite so. That is a question that very frequently arises. Now, I take it from schedule 1 of exhibit 66 that the Canadian consumption is some 11 billion as against the United States consumption of 64 billion?

A Just a moment, please. Yes.

Q So that the consumption is in those proportions, that is quite clear?

A Yes, sir.

Q It is not as large a fraction as $1/4$ but that is neither here nor there. And in this contract I suppose we can take $10-3/4$ cents and call it a base price?

A I think that would be fair.

Q Because it is subject to adjustment. Now is the fact that $10-3/4$ cents is the same price as is being paid by the

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Canadian Western Company for its supply of gas a coincidence, or did it have any bearing on the making of this contract?

A I think it had some bearing.

Q Gulf said to you, "If Turner Valley gets 10-3/4 cents, we are entitled to 10-3/4 cents."

A They did not say it in those words but it did seem to be a fixed price in this neighbourhood.

Q Yes. Do you say that they discussed with you the load factor at which this gas was to be supplied?

A Certainly.

Q And am I right in thinking that the load factor was first contracted for at 10-3/4 cents as 89%?

A No, not exactly.

Q What is it?

A 80. It is a little difficult to figure on this. We had two methods to consider here.

Q I read on page 1, paragraph 2(d), that is, a minimum has to be taken on a yearly basis of an average of 156 million cubic feet per day, "which shall be taken on a daily basis of a minimum of 125 million cubic feet per day and a maximum of 176 million cubic feet per day," . . . My instructions are that that indicates a load factor of 156 over 176, or 89%.

A But we have another part of the contract in which we take and pay for parts, and which we are permitted to take and pay for a given quantity of gas, 85% of the amounts mentioned, and that should have an influence on the load factor, so it is a little hard to figure the exact amount.

Q But if we look at this clause (d) alone, am I right in

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thinking that that would work out to around an 85% load factor?

A Somewhere in that neighbourhood.

Q Qualified to the extent of this clause you speak of, which is where in your contract?

A In the price of gas, I think.

Q I see the buyer shall pay for all gas delivered -- paragraph 10, perhaps, is what you refer to?

A Yes.

Q Paragraph 2.

" Buyer shall take and pay Seller for, and Seller shall sell and deliver to Buyer, the following quantities of gas, provided Seller has the same available for delivery to Buyer and provided, further, that Buyer shall pay Seller for at least 85% of the amount Buyer is obligated to take during each calendar year, whether taken or not."

Now that perhaps gives you a little leeway when you do not take the amount that you contract to take, but I would not think it has any bearing on this question of load factor, would you?

A Yes, I think it does.

Q I see. Well, we will have to let engineers decide that. Then this base price of 10-3/4 cents, and it is subject to adjustments up and down based on price of electricity in Portland, correct?

A Very slightly.

Q Based on the price of crude oil in Seattle?

A To a considerable extent.

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Q Based on commodity indices in the United States?

A That is the major one.

Q That is the major one. And it is subject to other fluctuations. I wonder if you could tell me the maximum and the minimum prices which you might be called upon to pay for Pincher Creek gas throughout the period of this contract?

A Well, the minimum would be, I think, by the contract, only 30% off. I think we have a stipulation that 8 cents is the minimum, it cannot be lower than that.

Q I wonder if we can find it?

A There is a minimum stated here.

Q Well, let's see if we can locate it. Perhaps somebody will refer us to it.

A It is there stated as a percentage. I forget. It was discussed back and forth but I forget what it was.

Q Oh, yes, I thought it was 80%. 11 (e) on page 6,

" In case any adjustment made pursuant to the provisions of Paragraph 11 hereof shall result in a decrease in the price of gas sold hereunder, the adjusted price for gas delivered herein shall not be less than 80% of the then price which otherwise would be applicable."

Now, I suppose that was the price that was then applicable with the escalator clause applied?

A Yes, sir.

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Q And the escalator clause you have explained quite clearly. Well, then, so far as a maximum price is concerned, I do not suppose anybody can guess at that?

A Well, it all depends. If the money went in the States like the franc in France, it would be hard to say.

Q Have you contemplated selling gas that you purchase under this contract in British Columbia?

A Yes.

Q And the price which British Columbia residents pay for Canadian gas is going to be governed entirely by events which occur in the future in the United States

A No, I would not say that.

Q You would not say that?

A No.

Q Well, how is their price going to be determined?

A We pay for the gas sold in Canada, we pay for that portion of the gas in Canadian currency.

Q Yes, but at what price do you pay for it? At the price determined by these United States factors, am I not right?

A I suppose so.

Q Yes?

A But those are world-wide factors, hardly United States factors.

Q I beg your pardon?

A I say the commodity price index is a world-wide phenomenon, or the phenomenon of the currency.

Q I do not so read sub-paragraph (a) of 11 at the bottom of page 5?

A Oh, I do not mean that was, but the prices in the United States, assuming currency did not run wild, are as easily

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influenced by world-wide conditions as they are in Canada.

Q Well, that is a proposition which you can state as flatly as you have stated it, Mr. Dixon, but I would think that world prices do not bear that out at the present time, would you?

A The world prices fluctuate up and down in different countries.

Q Oh, roughly, perhaps, but with very, very grave differences on occasions between country and country, even like the United States and Canada, do you not agree with that?

A Excepting for the tariff rates and things like that, I think the commodity prices go up just about the same.

Q And right or wrong, the British Columbia citizen is going to buy this gas which comes from Canada, at prices which are determined by United States factors?

A That is partly true.

Q Yes. Well, under this contract the consumer in Seattle and Portland is assured of his price, assuming that both your company and the Gulf remain solvent, the United States consumer is assured of his price over a 25-year period?

A No, sir.

Q No?

A No, sir.

Q Why not?

A On account of the Federal Power Commission which will or can immediately change the contracts we have with the consumers.

Q I see. So that the Federal Power Commission can say to you, "You are not going to get these prices", which you have stipulated for in Portland and Seattle, is that right?

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A They certainly can.

Q But Portland and Seattle are going to get the benefit over a period of 25 years of the prices that you have contracted to pay Gulf for this gas? Whatever the Federal Power Commission may do with that situation, which they have control over, Portland and Seattle and your other consumers in the United States are going to get the benefit of this firm contract over a period of 25 years, which you have made with Gulf?

A That is correct.

Q That is correct?

A Yes.

Q Yes. And the 10 $\frac{3}{4}$ cents, with adjustments up and down, provided for in this contract, will be the base price which the Federal Power Commission will look at in determining whether your contracts with Portland and Seattle are fair?

A No, it will be the price delivered at Kingsgate.

Q You say that the Federal Power Commission would not be interested in your base price?

A I say what they will be interested in, or they probably will be interested in taking, but we think that the only thing they really should take into cognizance, or any cognizance of, is the price at Kingsgate when it is entering the United States.

Q How is the price at Kingsgate determined?

A That would be determined by allocation of costs between the line from Kingsgate to. . .

Q Pincher Creek?

A Pincher Creek.

Q Yes?

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A And the line from there on through to the rest of the market.

Q I wonder if the Federal Power Commission would have the power to tell you to modify whatever contract which your two United States companies made with regard to our gas?

A Well, that is a legal question. There are a lot of questions, but that is something I cannot answer.

Q Yes. Now, my learned friend, Mr. Milvain, talked to you about whether or not this price that was fixed under this contract would have an effect on the field price of gas in Alberta, and I am going to suggest to you that just as Gulf used the Canadian Western's $10\frac{3}{4}$ -cent price to bargain with you, every producer in this Province, assuming no controls over matters, every producer in this Province is going to aim at the $10\frac{3}{4}$ -cent price for stripped gas delivered? You won't question that, will you?

A I think they will aim higher.

Q Yes, I think they will?

A They will aim for all they can get.

Q But the fact that this price has been fixed in this way and on a load factor of the character you have described, is going to have a distinct tendency to increase field prices in this Province until they get up to that point or higher?

A No, sir.

Q You think not?

A I think just the opposite.

Q What do you mean?

A Can I put my explanation in?

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Q Yes. But before you do it, Mr. Dixon, I gathered you told me a few minutes ago that producers of gas are going to be looking for even higher prices than $10\frac{3}{4}$ cents?

A They will look for the highest price they can get.

Q All right, now go ahead.

A Now, we have made a contract here at substantial prices, prices that gas can be produced from fairly small wells at a good profit. It gives encouragement to people to go out and drill. If we are allowed to export gas this market that you already have got has now been taken, and we will say the pipe line is full, but it will be then seen that there are prospects for other pipe lines. There will be a little bit of hope. Now, a person getting a gas well, something might or will happen that they can get possibly very large amounts, make very large amounts. A thing like this may encourage the drilling of wells in the Foothills. Now, the finding of a well in the Foothills, as the Gulf has done, or has found out, has been nothing but a headache and expense for years and years. There may be a whole series of Foothills' discoveries. There may be tremendous discoveries through the Plains. If there is a superabundance of gas, which would be brought on by the allowing of the export of gas, in which the producers are receiving a good price, there will be other large amounts of gas discovered, and that in turn will make competition between the sellers and the market, and that brings down prices. Every person that had a well would want to sell. They would like to get 20 cents, but they will take a nickel if they can't get any more. Just as they are selling gas at Kinsella now at 6 cents. I believe the gas going from

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Leduc, I am not certain, but up until recently, I think, it was 4 cents. Of course, they would like to get as high a price as they can, but they want to sell the gas, and if you cannot get one price, just like the farmer, if he can't get \$2.00 and a half for his wheat, he will sell it at \$1.00, and I think the stimulus given by the export of gas would have a tendency to decrease the cost to the local utility.

Q And do you suggest that there are going to be people who are going to be encouraged to explore for gas in this Province by reason of this contract you have made with Gulf?

A I certainly do.

Q And if that is so, they are going to go out and try to find another Pincher Creek field, and then find another exporter, or are they going to deal through you?

A I would like them to deal through me.

Q Well, has your contract with Gulf given them any encouragement to go out and find gas?

A I should think it would.

Q Yes. Now, something has been said of the deficiencies of the Canadian Western system. Let us be quite clear at the outset. There is not any part of this gas that you have tied up at Pincher Creek and these other fields that is available to the Canadian Western system?

A No, not excepting in the case of emergency, of course, or by orders of the Board. I mean, assuming the line is complete, we are crossing the Bow Island line, and the Board has control at all times of where we put our gas.

A I see. So that you would be satisfied, would you, with

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an order from the Board giving you permission to export, but subjecting your gas, which you have now contracted for, to a prior claim by the Canadian Western system?

A Under suitable conditions, I think that is the prerogative of the Board.

Q It is. I am asking you if you would be satisfied to have a permit in those terms?

A It depends on the exact conditions. You could make such terms where it would be impossible to finance the line.

Q The condition suggested to you was one where Canadian Western throughout the 25-year period would have a prior claim on this gas that you have tied up, tentatively tied up, perhaps, I should say?

A Yes. I should think that would have to be something for the lawyers and financiers to determine. Of course, they have the right to do that. It might be that such terms could be made so harsh that they would preclude the possibility of financing the line.

Q Quite?

A But, it can be made under such conditions that it would be an excellent thing for both companies.

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Q The consumers of Alberta, assuming that this gas covered by your contract is necessary to protect them for the future, the consumers of Alberta could do nothing more than demand, nothing further or more drastic than demand a prior claim on the gas that you contracted for. Now, that is as drastic as it could be?

A Well, I should think . . .

Q Do you say that you would be satisfied that either by contract or by statutory provision that situation should be brought about?

A I think the statutory provision is there right now.

Q I see. You have studied that, have you?

A Well, I have read it and I was in the Legislature when it was passed and debated.

Q Have you ever given any consideration as to its constitutionality under your scheme?

A No, I have certainly not. That is something that is certainly beyond me.

Q Or have you been advised of it?

A No, I have not.

Q Well, then, have you given consideration, or have your officials given consideration, to what Canadian Western is going to do if they cannot get a claim on this gas that you have contracted for?

A No, that would be too difficult for me to tell what the Canadian Western is going to do.

Q But the Board has requested that you applicants make suggestions as to how these deficiencies for these local distribution companies, Canadian Western and Northwestern,

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are to be satisfied?

A Well, I think I answered that.

Q You dealt with it yesterday, it is true?

A I would like to go into a little more detail, if I might.

Q I wish you would.

A Now, suppose there was a deficiency. There, apparently, is no deficiency now.

Q Oh, just a moment, excuse me.

A In the immediate . . .

Q Excuse me, Mr. Dixon. If you will look at the Board's report, will you, on page 45, no, page 49. Have you got a copy of it there?

A No.

MR. McDONALD: There is one.

A Oh, pardon me. Thank you.

Q MR. STEER: It is page 49, if my memory serves me right. Yes, page 49, column 22, which would indicate . . .

A Page 49, column . . . ?

Q . . . 22.

A Yes.

Q Now, that indicates as from the year 1956, I think it is, there is a deficiency of gas in the Canadian Western system. Perhaps I am wrong.

A It is 1958, isn't it?

Q 1958?

A Yes. Oh, yes.

Q There is a deficiency?

A Oh, yes, but I mean immediate, right now, at this present time. At this present time there is no immediate deficiency,

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and apparently will not be for several years.

Q Well, we will accept that. How is that deficiency going to be met, according to you, Mr. Dixon?

A Well, there are several ways it can be met. If we consider the -- let us consider the fields that aren't, or are and have been discovered now, which makes something concrete to go on, and we wanted to take care of a deficiency there, it starts off rather small and then increases considerably. There are two -- there is one field of Cessford, it is of a very considerable extent, and it is being rapidly developed, which is available, unless they get a permit to go somewhere.

Q How many wells are there drilled in Cessford?

A There are four or five, I think.

Q Yes. What would you say the proven reserves are in Cessford?

A I think DeGolyer and MacNaughton's figures can be relied upon.

Q You refer us to their figures?

A Yes. I have made no study.

Q All right, apart from Cessford where do you go?

A Pakowki Lake has a very large amount of gas that may or may not go into Montana.

Q How far is Pakowki Lake from Calgary?

A It is a long way, but if we built a gathering system such as we have contemplated, that will bring it a great deal nearer.

Q Yes?

A We have a large excess capacity in our line, and it is there for the purpose of being able to take care of any excess load.

Q What is the excess capacity in your line?

A Well, just at the present, if you consider the 24-inch line, the main line, and the gathering line, we would have 150 million

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a day excess capacity by putting in a moderate amount of compression.

Q Does that line of yours go anywhere near Pakowki Lake or Cessford at the present time?

A Yes, it does, in that general - it just starts off down here, which is within about 100 miles of it, about 70 miles of it, I guess.

Q Any other fields?

A Well, there are the small fields that have not been developed yet, just one well drilled, no market and no development, there is Sunnynook and Countess and a great many single-well fields, and which are generally encouraging and they might be developed into fields.

Q I see.

A But I am speaking of this general area that we are wishing to draw the gas from.

Q Yes.

A Oh, there is another source, that is around Olds. There is an indication there that there might be a very, very large development. It looks very good.

Q Maybe?

A Maybe.

Q Yes?

A If it is.

Q Shell-McKidd has been mentioned too?

A Yes. Well, that has technical difficulties.

Q I see.

A It may also be developed into something that is quite well worth while.

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Q Yes?

A But, certainly it would be sort of foolish to try to consider what should be done five years from now when we consider what has happened during the last five years in the line of development. We then can see, or the Board can see what should be done.

Q And you think the Board will be in a position five years hence to say to you, "These prospects that you have spoken of have not developed in the way that you thought they might, and Canadian Western needs your gas, and we direct you to deliver over the gas to Canadian Western before you supply anybody else." Would you be quite happy with that?

A No, I do not think that would be done. I should think they could direct us, though, to gather gas and to get gas for Canadian Western.

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Q I see. Have you any idea what the cost would be to Canadian Western, assuming that there was a field at Pakowki Lake that was available to gather that gas and bring it to Calgary? Have you given any thought to that?

A Yes. I do not know the condition of the 16-inch line, which I believe is rather old and not in very good condition. I do not know how much gas that would carry or whether it would be at the time you wanted to bring it any good or not. It might be filled up with other gas coming from this direction, although that seems very unlikely. I should think another factor would be the volumes of gas that you wanted from Pakowki Lake. If you wanted to take a large amount I would think the cost of transporting it can be estimated roughly from our Exhibit 66 in which we have the cost of gathering the gas, the Alberta Natural Gas Grid. That is divided among all the gas that is produced and it should be multiplied by about 3. About 9 cents, just a rough, quick estimate, I should say it would cost to transport a considerable volume of gas from Pakowki Lake to Calgary. That is not assuming any aid from another pipeline.

Q Is that gas sweet?

A Yes.

Q You say that you think Pakowki Lake gas should be brought to the city gate in Calgary and delivered there at a cost of 9 cents?

A Transportation costs.

Q Plus the field price?

A Yes, sir, plus delivered at the line at a reasonable pressure.

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Q If the field price for sweet gas at Pincher Creek, sweet stripped gas at Pincher Creek, is $10\frac{3}{4}$ cents, then the cost to Canadian Western of Pakowki Lake gas on the same basis would be some 19 cents?

A If they paid the same price. Of course, my estimate there, I do not want to be taken too seriously. It was just making some quick comparisons.

Q There would have to be very careful figuring if that were ever contemplated. Of course, that is subject to prior calls and the future extent of those claims we know nothing about?

A The Cessford area seems to have no ready market right now. Our projected line would help in transporting that.

Q Would you consider the Cessford area proved to the extent that Britalta or Pakowki Lake area is proved?

A Not quite but they have proved a very considerable amount of gas, though.

Q In widely scattered wells?

A That is correct.

Q Yes. And a tremendous amount of drilling will have to be done before the continuity of that structure is established?

A Not so much if the wells are successful over a considerable area.

Q Yes, I know, but there will be a lot of drilling necessary in order to connect up those individual wells that have produced gas?

A Oh, of course.

Q And there have been a lot of dry holes in the Cessford area?

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A I can only remember two, and I do not think they were in what you consider -- well, it is not considered now a proven area, of course.

Q I see. And there has been a good deal of drilling done that has resulted only in a very, very small production of gas?

A That is very true.

Q You would not regard Cessford as a source of supply for Canadian Western today, would you?

A Not today. There is no necessity for it now.

Q You think to look five or six years ahead is too long to look ahead for a public utility of the character of this company?

A They should look a long way ahead, I should think, twenty years.

Q Yes. You spoke yesterday, Mr. Dixon, of Jumping Pound and you stated that that contract of yours was suspended. Is it to be revived?

A Not that I know of unless there is no additional market for gas coming into Calgary.

Q I gather that your contribution to the solution of the difficulties of these local distributing companies is that your line would act, if desired, as a common carrier for Canadian Western gas?

A Well, that is a very small part of its use. I think its great use and the great benefit as to all is that it is a stimulant to additional drilling.

Q In other words, your contribution is two-fold, you say, first of all, if they discover gas we will carry it and deliver it, and in the second place, you say that the

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fact we made this contract with Gulf is going to stimulate other people to explore for gas so that they can make similar contracts to that which Gulf has made?

A Or make some sort of contracts.

Q Or make some sort of contracts. I think that is all, thank you.

MR. MAHAFFY: Mr. Chairman, I would like to ask Mr. Dixon a few questions. I am just wondering if you would like me to start now or in the morning. I would not be able to finish by noon, but it is whatever you wish, sir.

THE CHAIRMAN: I think we might carry on.

CROSS-EXAMINATION BY MR. MAHAFFY:

Q Fine. Mr. Dixon, just following along one or two of the thoughts that you have expressed to my friend, Mr. Steer. First of all, I am right in thinking, I hope, as a result of looking at these various exhibits, that as far as your projected line to the Pacific Coast is concerned that 95 per cent of its capacity is taken up by the Gulf contract, $7\frac{1}{2}$ by California Standard, and $7\frac{1}{2}$ by Britalta?

A Well, that is during the first year.

Q Yes. And similar splits in subsequent years?

A No, it changes.

Q What I am getting at is, if I understood you correctly, excuse me interrupting you, these three suppliers are the only three who can supply through your projected transmission line to the Pacific Northwest, is that right?

A Excepting for an insignificant amount of gas that may come in later.

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Q And then, as you put it yesterday, words something like this, there is no more room in the line for other fields?

A That is true.

Q Now, you filed an exhibit a couple of days ago, it is Exhibit No. 64, a letter addressed to you by Amerada Petroleum Corporation. Have you any idea what this company is now going to do with its production?

A I have no idea and I do not think they have.

Q They are, to use a common expression, left out on a limb, are they?

A It is their own fault.

MR. C.E. SMITH: Will you ask him where they are and save me asking him? Would you mind, where those wells are? I am sorry, I did not intend to waste time.

A The Sunnynook field, Amerada Stanolind, which is 50 miles due north of Brooks.

Q MR. MAHAFFY: And as far as you know, as I say, there is no provision now for them to participate in a market anywhere?

A No. Mr. Jacobsen is a good friend of mine, known him very well, the president of Amerada.

Q It serves him right anyway, eh?

A He would not act quick enough and the others came around and wanted to sell gas so we made the agreement with them,

Q Now, about some other dry gas fields? You have been discussing Cessford with Mr. Steer. Am I right in thinking that unless they have some markets opening in Calgary, they, along with Amerada, are just left out in the cold as far as a market is concerned?

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A They may develop some scheme. Of course, they are hoping to bring their gas to Toronto.

Q Do you think they will?

A No, sir.

Q Well, then, where else might they go?

A They might go to the towns in Saskatchewan but I have reason to believe that Saskatchewan wants to supply its own market.

Q All right. Now, what about Pakowki Lake, are they in the same position?

A They want to bring their gas to Montana. They are now almost ready to do it excepting for a few little legal difficulties.

Q And then I suppose you would agree with me that we have some oil field gas in contemplation. In fact, we have some now, have we not, at Stettler, Big Valley, Caproni?

A There is some, I believe, in those places.

Q And I gather from information in evidence you have given this Board over the past couple of years that you would expect that with business and conditions here that there is going to be a lot more of these oil fields discovered and bring with them what we sometimes call distress gas conditions?

A I certainly think that will happen.

Q And will this gas be able to find its way into your pipeline? I suppose not when it is full.

A Well, it is full because we are only applying for 80 billion. We would love to get more but our application is for a limited amount.

Q Yes. And the same applies to the distillate fields, Bailey-Olds and Shell-McKidd?

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A Naturally. Although I think their being so near to Calgary that they should be considered more of a source of gas for the local market than fields that are more distant.

Q Well, now, are far as your line is concerned, certainly in the near future, and by that, I mean three or five years, something like that, all of these other producers have just to stand by and wait for some other development to take place? That is right, isn't it?

A We would like to hook them up just as soon as the Board would allow us to export more gas. We have a market for an amount in excess of this 80 billion and we would like to fill it as fast as we could.

Q Now, what is the initial capacity of your line? I think it is 285 million, is it not?

A Yes. That is when you get up to the final capacity for the 80 billion. This is only the capacity when we consider 80 billion. That is not the capacity of the line. That is the amount of compression and capacity we need to sell the 80 billion per year.

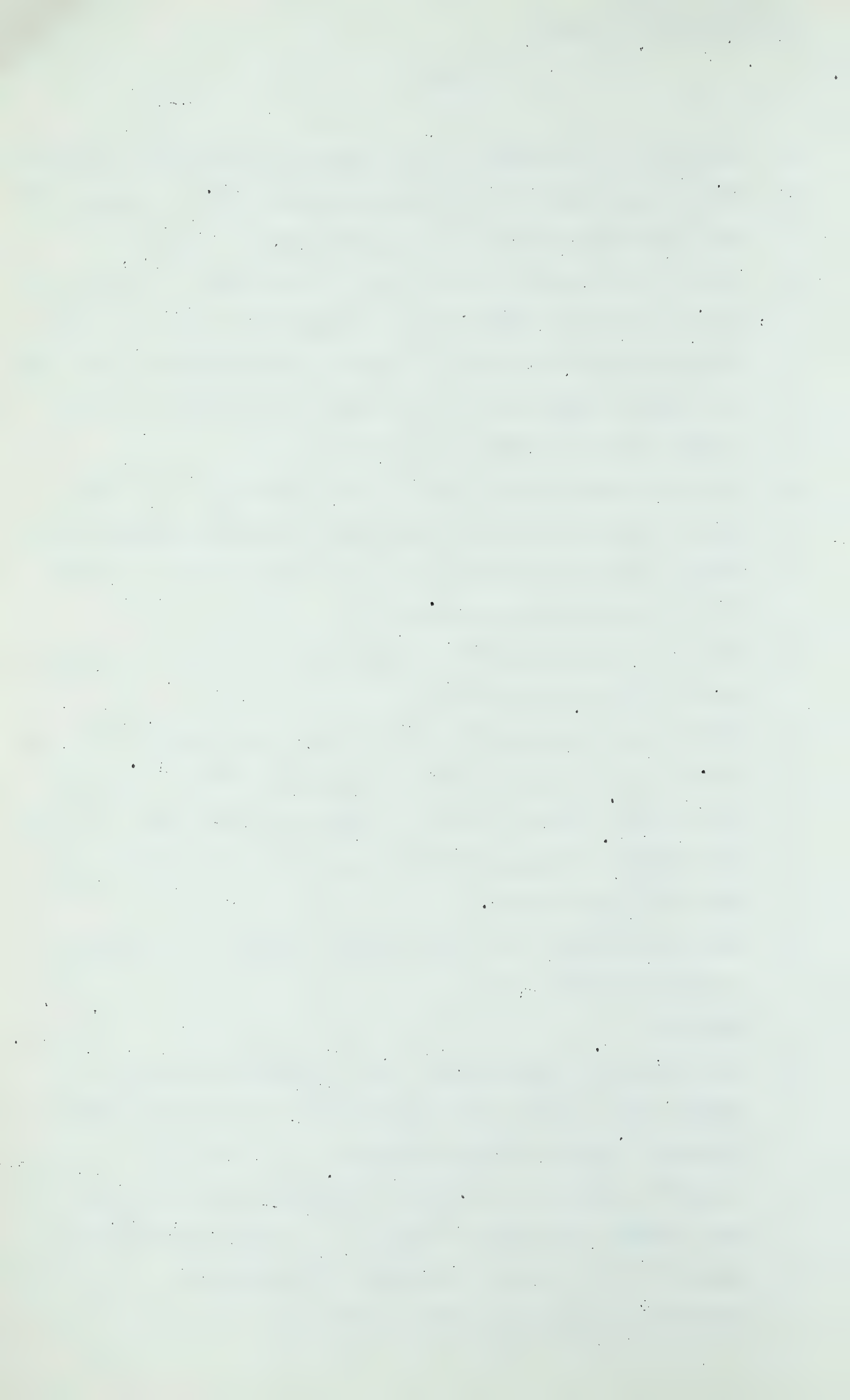
Q That is what you call your initial capacity in your contract with Gulf?

A Yes, sir.

Q 285 million per day. Now, will you explain to me, Mr. Dixon, what is the limit capacity of this line? I mean, probably add additional boosters?

A About 350 million. That is, you could put out a great deal higher but without looping -- it might be advantageous to start a little looping at that figure.

Q Without looping but by the addition of ?



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A A reasonable amount of compression.

Q 350 million a day?

A Mr. Copp, is that approximately right?

MR. COPP: 360.

Q MR. MAHAFFY: And by doing a reasonable amount of looping, what capacity could you carry?

A When you start to loop then you have unlimited capacity, you just keep on going.

Q Well, now, with those pipeline limits which you have given me, the proposition is still correct, is it not, that over and above your commitments on the three fields there is very little room left for others in your pipeline capacity?

A Practically speaking, none for our 80 billion application. For all practical purposes today there is no room left.

Q And if you went over the 80 billion, what would the situation be on the basis of the three contracts you have got?

A They would remain the same in the quantities and we would have to go out and get additional gas.

Q Well, now, of course, we have not got your California Standard and your Britalta contracts yet but I understand from your evidence that 25 million a day was a minimum figure from each of those companies?

A Yes. We promised to take that much, we do not promise to take any more. I feel myself under obligation to California Standard on additional amounts of gas on account of the fact we had contracts with them which they pushed to one side to make this contract which is not to my mind quite a favourable as their old contract.

Q Now, Mr. Dixon, I am going to suggest this to you, don't

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you think in the interests of the natural gas and of the oil industry in Alberta that it is only right that where it is economically possible that all producers should share in the available markets?

A The laws of Alberta, I understand, are very clear on that and we will have to follow it.

Q Pardon?

A I say, the laws of Alberta, I believe, are very clear on that subject.

Q Well, I am glad they are clear to you. Sometimes they are not too clear to me. What law are you speaking of with respect to the marketing of gas, for instance?

A In general, that the Conservation Board or the Utilities Board have absolute and complete control over anything any gas producer or pipeline has to do.

Q And have you made these contracts with Gulf, Standard and Britalta in the expectation that the Board can order other producers into the pipeline along with them?

A The Board can do what they wish, as far as I know.

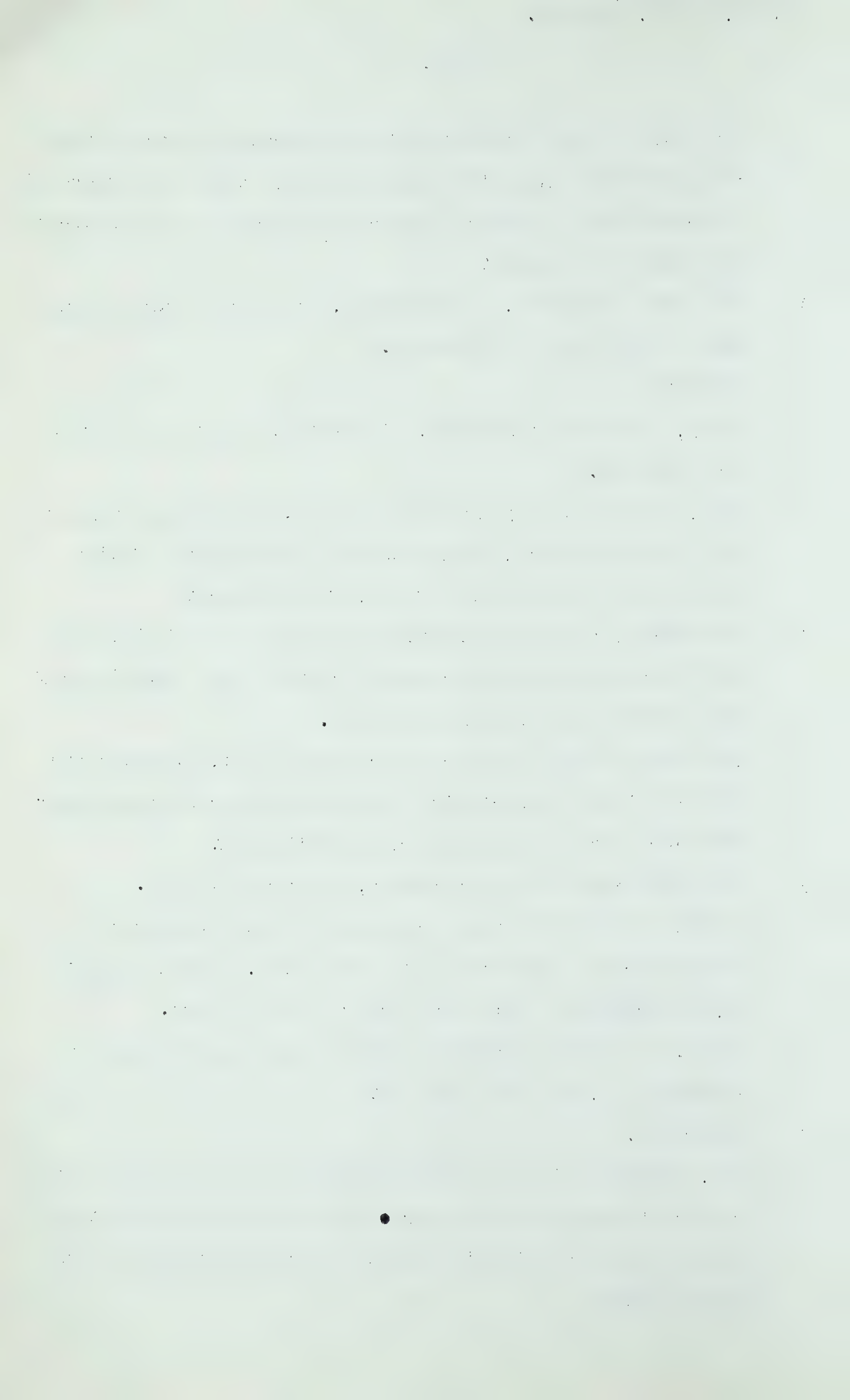
Q So that as far as you are concerned you are prepared to accept further nominations for your line, is that right?

A We are prepared to obey the orders of the Board.

Q I see. So if the Board has power to make such an order and makes it, you will obey it?

A Naturally.

Q Now, I take it that you would give me the same answers with respect to any gas fields or oil and gas fields discovered in the future about which nobody has any knowledge at the present time?



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A Certainly.

Q Do you feel they should have a market-sharing position?

A Well, I think all such things should be done equitably. For instance, if Gulf invests \$40,000,000.00 in a plant in order to get going, I think that should be given great weight and that market should and their market for gas should not be lightly snatched away from them. I think they would have a vested interest no matter whom they were selling to to dispose of their product after making that very substantial investment and probably with a great many corollary industries around it. I think then to throw in anybody else would be a great injustice to Gulf and would do nobody any special good.

Q Even though on the other side of the fence we had an oil field with the Government perhaps at that time insisting that the oil be produced and gas be flared?

A Well, we are ready and willing to take that gas away at all times. If it was the market that was limited, that would be another story.

Q Well, granted there are problems raised, but don't you, as an oil man and gas man of experience, feel that from the producers' point of view general pooling of the available market is the only fair way to treat them?

A In general, but I think in the particular case of the Gulf or anyone that goes to that expense to make a development, that should be given consideration.

Q Now, isn't it also true, Mr. Dixon, that a pooling of supplies would facilitate the construction of export lines and the acquiring of markets in other places?

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A To a certain degree, it might. I do not know what you mean by pooling supplies. Do you mean such a grid system as has been presented originally?

Q Well, I was thinking of that type. Take your own original one, if you like. Does it not result in a diversification of supply around an export line which should naturally assist in financing the building of these lines?

A If it could be done at a price that would deliver the gas the line could be financed.

Q Now, in your Exhibit 65, Mr. Dixon, --

MR. C.E. SMITH: That "now" sounded like
second wind coming up.

THE CHAIRMAN: If you want to carry on a
few minutes more that is all right.

MR. MAHAFFY: I am afraid I can not finish
within a reasonable time.

(The Hearing then adjourned until Thursday,
November 22nd, 1951, at 9:30 A.M.)

The Province of Alberta

PETROLEUM AND NATURAL GAS CONSERVATION BOARD

Application for Permission to Remove or cause to be removed
Natural Gas from the Province of Alberta, under the Provisions of the
Gas Resources Preservation Act by Western Pipe Lines.

I. N. McKinnon Esq., Chairman

D. P. Goodall Esq.

Dr. G. W. Govier

Session:

Volume_____

